a-dec

OPERATION AND MAINTENANCE INSTRUCTIONS

PORTA-CART 3406

FEDERAL ITEM IDENTIFICATION

DENTAL OPERATING AND TREATMENT UNIT, FIELD PORTABLE, AIR OPERATED

NATIONAL STOCK NUMBER

6520-00-140-7663

WARRANTY

A-dec warrants its products against defects in material or workmanship for one year from time of installation. A-dec's sole obligation under the warranty is to repair, or at its option, to replace the unit. The buyer shall have no other remedy. (All special, incidental, and coincidental damages are excluded.) Written notice of breach of warranty must be given to A-dec within the warranty period. The warranty does not cover damage resulting from improper installation and maintenance, accident or misuse. The warranty also does not cover upholstery damaged or disfigured by excessive or misuse.

NO OTHER WARRANTIES AS TO MERCHANTABILITY OR OTHERWISE ARE MADE.

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Porta-Cart 3406

OPERATION AND MAINTENANCE INSTRUCTIONS

THIS INSTRUCTION MANUAL APPLIES EXCLUSIVELY
TO EQUIPMENT PURCHASED BY THE UNITED STATES
DEFENSE PERSONNEL SUPPORT CENTER UNDER
NATIONAL STOCK NUMBER 6520-00-140-7663.
NO OTHER USE OF THIS MANUAL IS AUTHORIZED BY A-DEC.

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INTRODUCTION

GENERAL

The A-dec Porta-Cart 3406 dental system is one of the finest units of its type available to the dental profession. It is engineered to provide many years of reliable performance, while demanding a minimum amount of attention. As is the case with any precision instrument, however, a certain amount of care is required. Conscientious adherence to the instructions given in this booklet will ensure that you receive the best and longest service from your unit.

This manual covers the operation, maintenance, troubleshooting, and repair of the A-dec Porta-Cart, plus auxiliary equipment and accessories provided as specified under military specification MIL-D-37945 (12-10-79).

DESCRIPTION OF THE SYSTEM

The A-dec Porta-Cart (Figure 1) is a self-contained mobile dental unit designed for field or operatory use.

All facilities required for the practice of general dentistry are provided for both the doctor and the dental assistant. It is built around A-dec's Century II automatic control system for two handpieces with air and water coolant. Oral evacuation is provided by a built-in Air Vacuum System (AVS) and an Air Saliva Ejector (ASE). A pressurized two-quart tank supplies water for handpiece coolant and the syringe.

The only external connection required is the air supply. A ten foot air supply hose is furnished for this purpose. It may be connected to a compressor delivering dry, filtered air at 80-100 psi @ 4 cfm, or to bottled gas (carbon dioxide or nitrogen) regulated to 80-100 psi.

The entire unit can be quickly disassembled and packed into its fiberglass carrying case for safe transportation and storage.

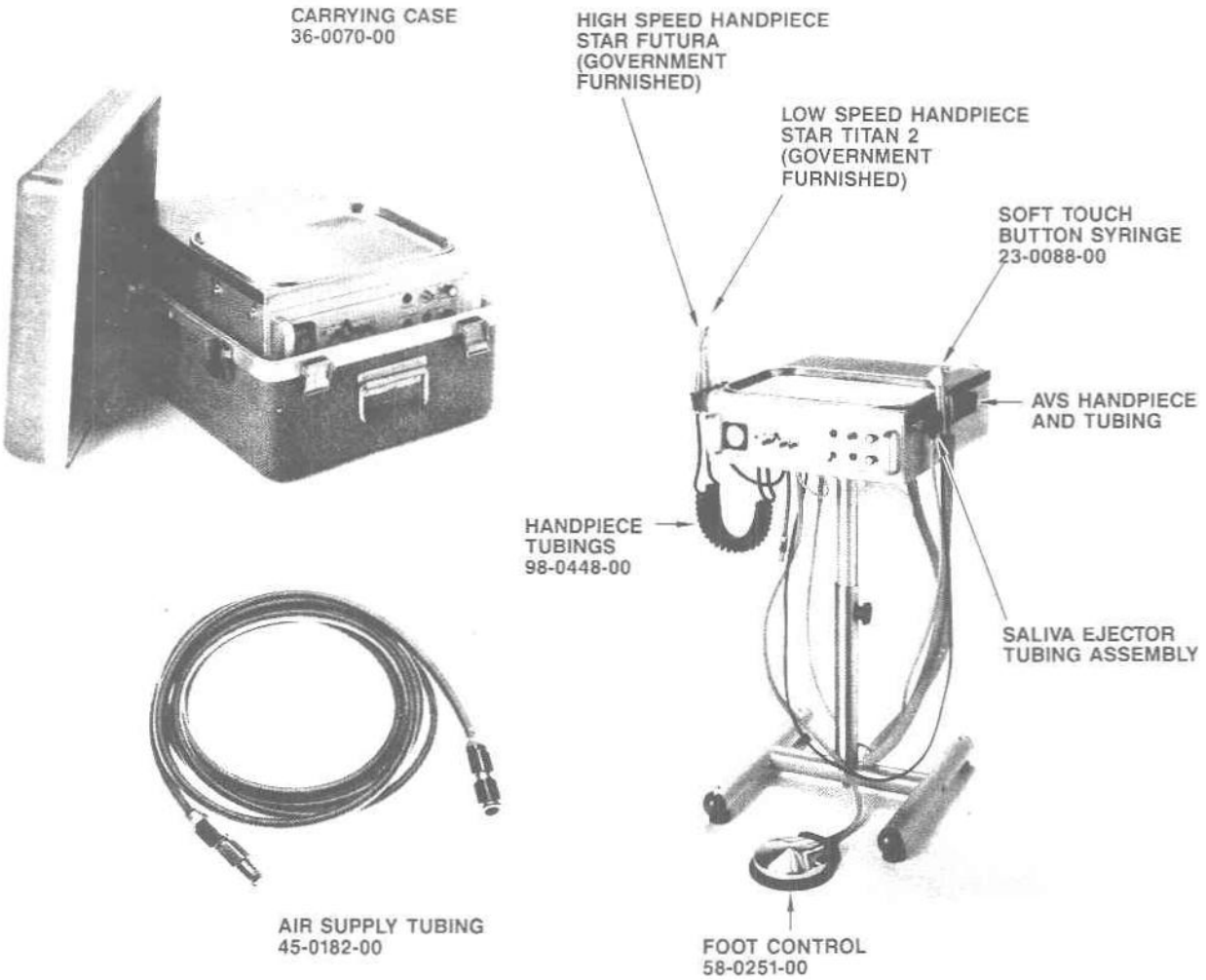


FIGURE 1

EQUIPMENT FEATURES

- Century II Automatic Control System for Two Handpieces
- Air Coolant Flow Control
- Water Coolant On-Off Toggle
- Individual Water Coolant Flow Control for Each Handpiece
- Individual Drive Air Pressure Adjustment for Each Handpiece
- Drive Air Pressure Gauge
- Disc Type Foot Control with Chip Blower Button
- Self-Contained Two-Quart Water Tank
- Water Pressure On-Off Toggle
- Air Vacuum System, including:
  - AVS Handpiece Assembly
  - Oral Evacuator Flow Control
  - Air Saliva Ejector with Solids Separator
  - Polypropylene Waste Bottle (17-0270-00)
- Soft Touch Button Syringe with Coiled Tubing (23-0088-00)
- Quick-Disconnect Water Outlet
- Adjustable Height Frame
- Fiberglass Carrying Case (36-0070-00)
- Stainless Steel Tray, 15 1/8″ x 10 5/8″ (043-003-00)

ACCESSORIES PROVIDED

- Two Coiled Handpiece Tubings with Midwest Connectors (98-0448-00)
- 10 Foot Air Supply Tubing with Quick Disconnects (45-0182-00)
- Water Tank Filler Funnel (009-003-00)
- Stainless Steel Dry Oral Cup (11-0450-00)
- Stainless Steel Oral Evacuator Tips (10-0010-00), 3 Each
- Porta-Cart Accessory Kit (36-0089-00)

GOVERNMENT FURNISHED ITEMS

- Star Futura F303 High Speed Handpiece (Star No. 53874)
- Star Titan 2 TA202M Low Speed Handpiece (Star No. 3055)

For Operation and Maintenance Instructions, refer to the manuals furnished by the handpiece manufacturer.

EQUIPMENT NOT PROVIDED

- Air Source, refer to the following:
  - Compressor-Dehydrator for Field Use, NSN 6520-00-139-1264
- A-dec Aluminum CO_2 Tank and Regulator Assembly (42-0276-00)
- Umbilical for Connecting to Permanent Utilities
- Consumables:
  - Saliva Ejector Mouthpieces, NSN 6520-00-082-2673
  - Dry Oral Cup Liners, Cut, Package of 1000 (11-0490-00)
  - Dry Oral Cup Liners, Uncut with Hole Punch, Package of 1000 (11-0840-00)
  - Oral Evacuator Tip, Gray Plastic, Package of 12 (11-0220-01)
  - Oral Evacuator Tip, Disposable White Plastic, Package of 100 (11-0230-01)
  - AVS Handpiece Cleaning Brush, Package of 6 (049-001-01)

PERFORMANCE CHARACTERISTICS

The A-dec Porta-Cart 3406 performance conforms with the following specifications:

1. High temperature, in compliance with Method 501, Procedure I, MIL-STD-810B.
2. Low temperature, in compliance with Method 502, Procedure I, MIL-STD-810B.
3. Vibration, in compliance with Method 514, Procedure XI, Part 2 (Bounce, Loose Cargo), MIL-STD-810B.
4. Shock, in compliance with Method 516, Procedure II, MIL-STD-810B.

Water Tank Capacity: 2 Quarts (1.89 Liters)
Waste Bottle Capacity: 2 Quarts (1.89 Liters)
Air Supply Requirements: Dry, Filtered Air or Bottled Gas (Nitrogen or CO_2), 80-100 psi @ 4 cfm

PHYSICAL SPECIFICATIONS

Height: Adjustable from 24 to 32 inches
Width: 19 inches
Depth: 19.5 inches
Shipping Weight: 72 lbs. including carrying case
Carrying Case Dimensions: 17″ x 20″ x 11″

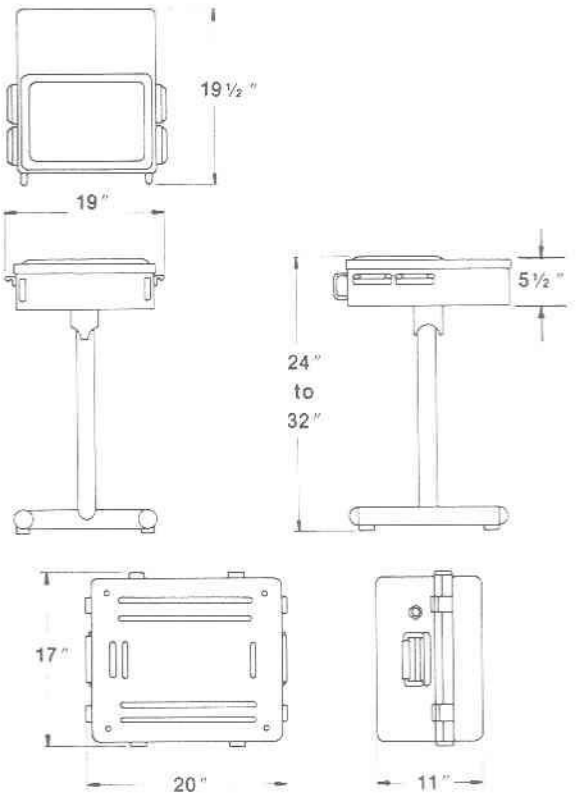


FIGURE 2

SAFETY PRECAUTIONS

Providing that the instructions given in this manual are followed, the A-dec Porta-Cart 3406 presents no operational safety hazards, and no special safety precautions are required. Observe the normal precautions associated with standard dental practices and procedures.

EQUIPMENT SETUP

INSPECTION

1. During the assembly of the unit, check for obvious external damage such as cracked carrying case or dented unit.
2. Check the contents against the **Accessories Provided** and **Government Furnished Items** lists on page 2.
3. Inspect the handpiece holders for cracks or breakage.
4. Check the Porta-Cart frame by adjusting it to several different heights.
5. Check the entire unit carefully for loose or missing hardware.
6. After connecting the Porta-Cart to an air supply and filling and pressurizing the water tank, make a thorough inspection for air or water leaks.

UNPACKING AND ASSEMBLY

1. Loosen the air relief valve screw (Figure 3) on the carrying case.

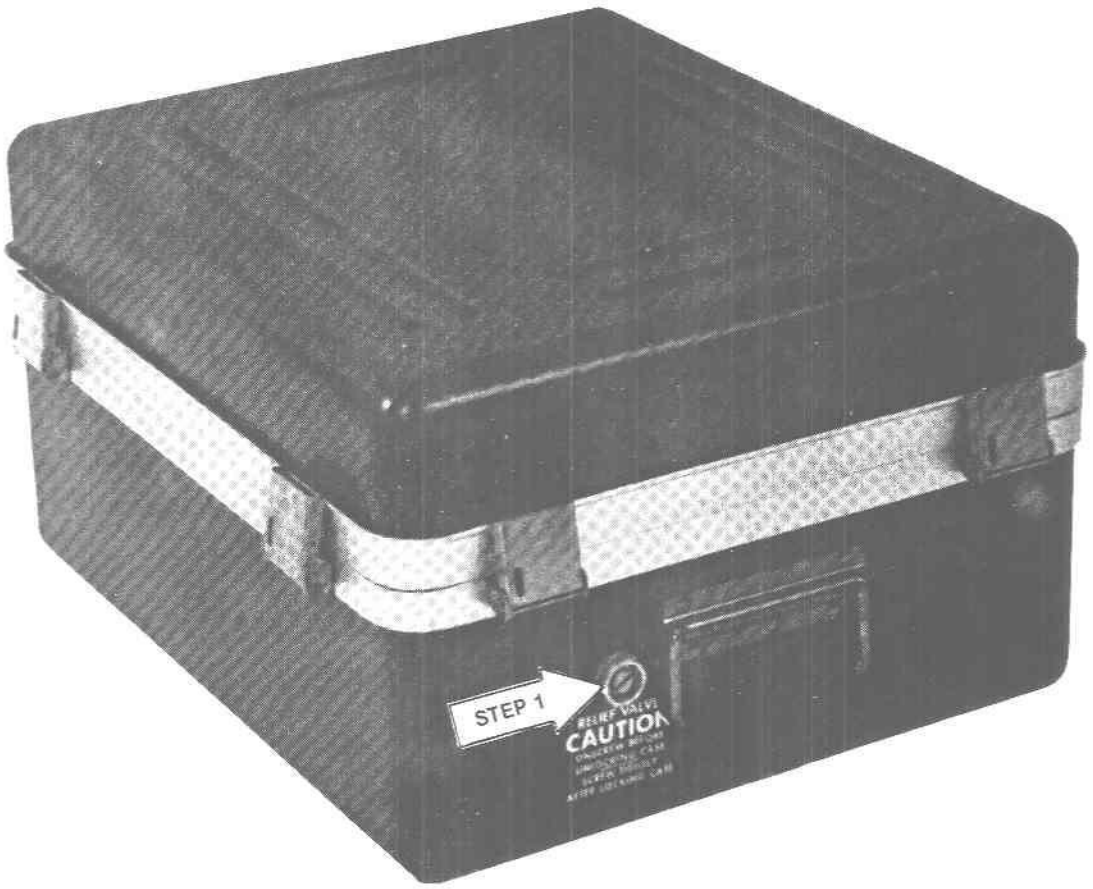


FIGURE 3

2. Unlatch the case, and remove the lid and protective foam pad (Figure 4).

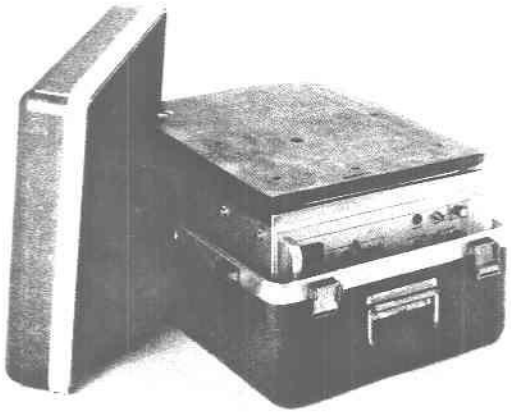


FIGURE 4

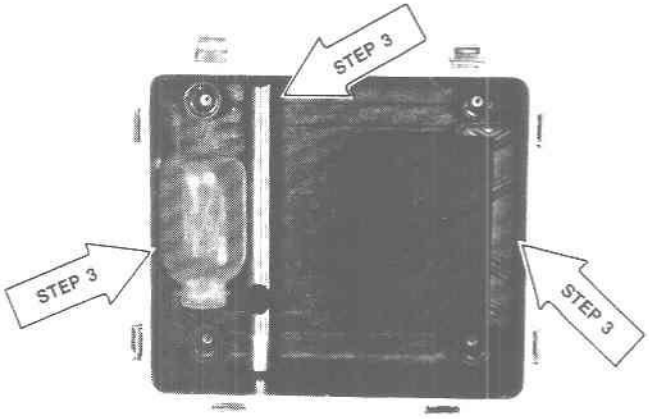


FIGURE 6

3. Lift the unit from the carrying case (Figure 5), then remove the waste container, accessory kit, and post assembly (Figure 6).

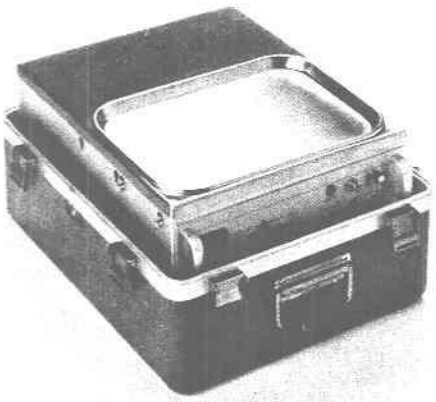


FIGURE 5

4. Use the 3/4-inch open end wrench from the accessory kit to remove the capscrew that secures the frame base to the underside of the unit (Figure 7).

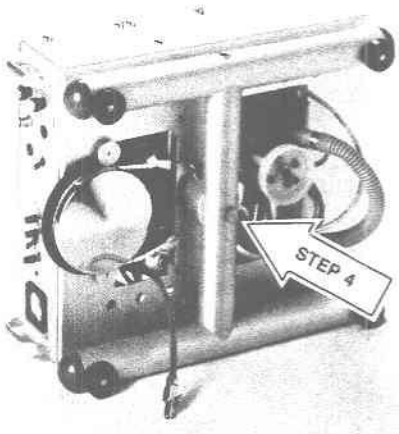


FIGURE 7

5. Use the same capscrew to attach the post assembly to the frame base, as shown in Figure 8.

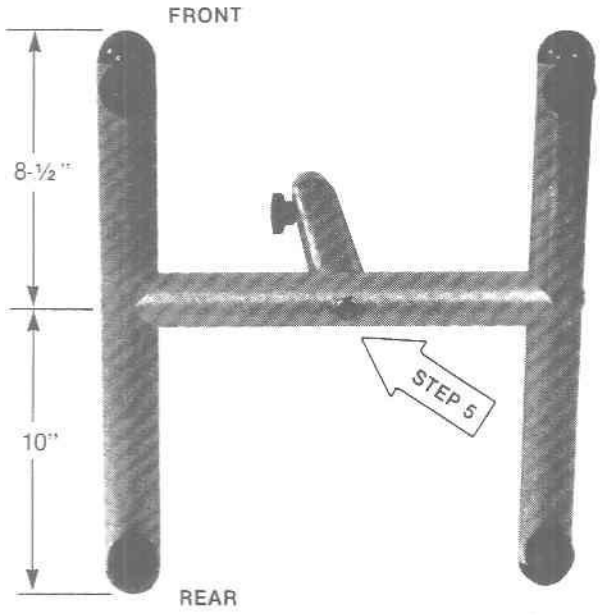


FIGURE 8

6. (Optional) For maximum unit mobility, the casters from the accessory kit may be installed at this time. Use a 5/32-inch hex wrench to remove the foot pads from the frame base; then insert the casters into the same holes and secure them with the capscrews from the foot pads (Figure 9).

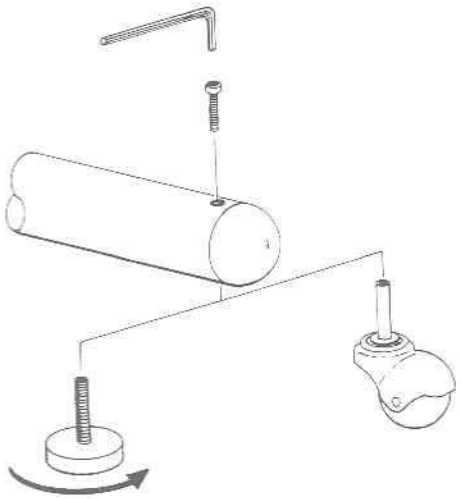


FIGURE 9

7. Note the front and rear of the frame base, as shown in Figure 8. Stand the frame upright and install the unit on the post. Tighten the thumbscrews (Figure 10).
8. The foot control is stored on the underside of the Porta-Cart, secured by an elastic cord (Figure 10). Remove it, and carefully draw the foot control tubing from inside the unit.

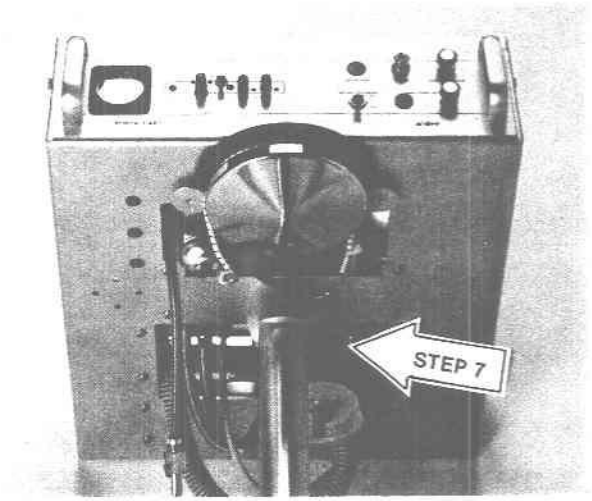


FIGURE 10

9. Lift off the top of the Porta-Cart. Loosen the thumbscrews that secure the instrument hanger bar assemblies upside down in the unit (Figure 11).

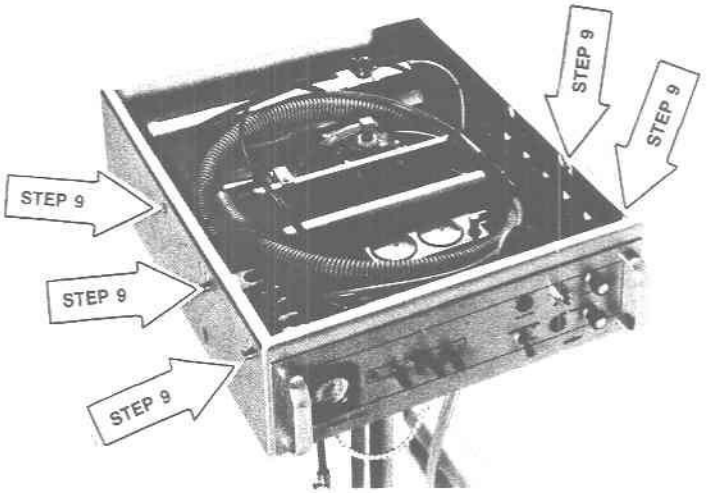


FIGURE 11

10. Move the hanger bar assemblies to the outside of the Porta-Cart and install them, as shown in Figure 12 or in the alternate holes lower on the side of the unit.
11. Uncoil the saliva ejector and AVS handpiece tubings, and feed them out through the bottom of the unit. Hang the saliva ejector tip and AVS handpiece in the hangers, as shown in Figure 12.
12. Feed the handpiece tubings and syringe out through the bottom of the unit, and place them in the hangers.
13. Install the handpieces on their tubings, as shown in Figure 13.
14. Screw the AVS waste container onto the bottom of the AVS assembly (Figure 13).
15. Connect the 10-foot air supply tubing to the quick-disconnect on the short supply tubing under the Porta-Cart (Figure 13).

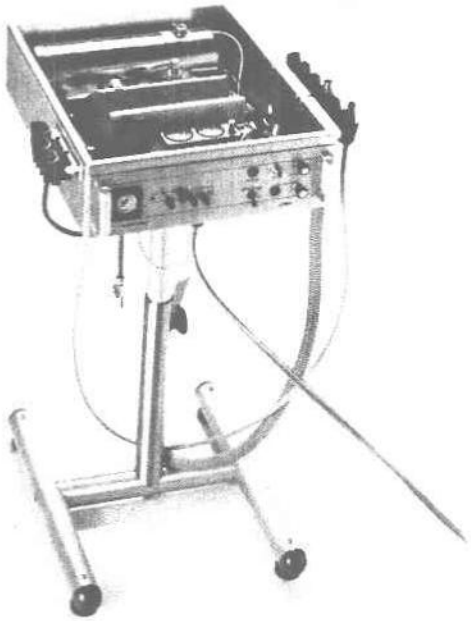


FIGURE 12

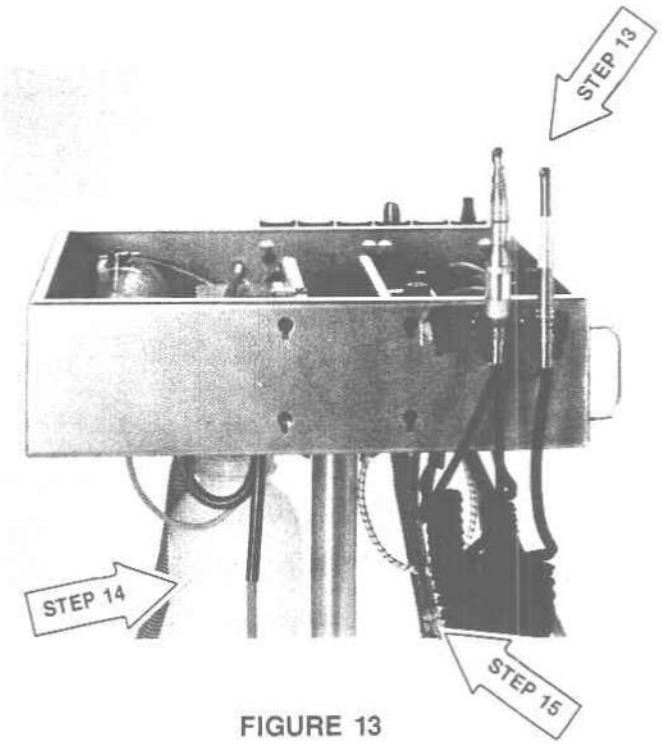


FIGURE 13

OPERATION

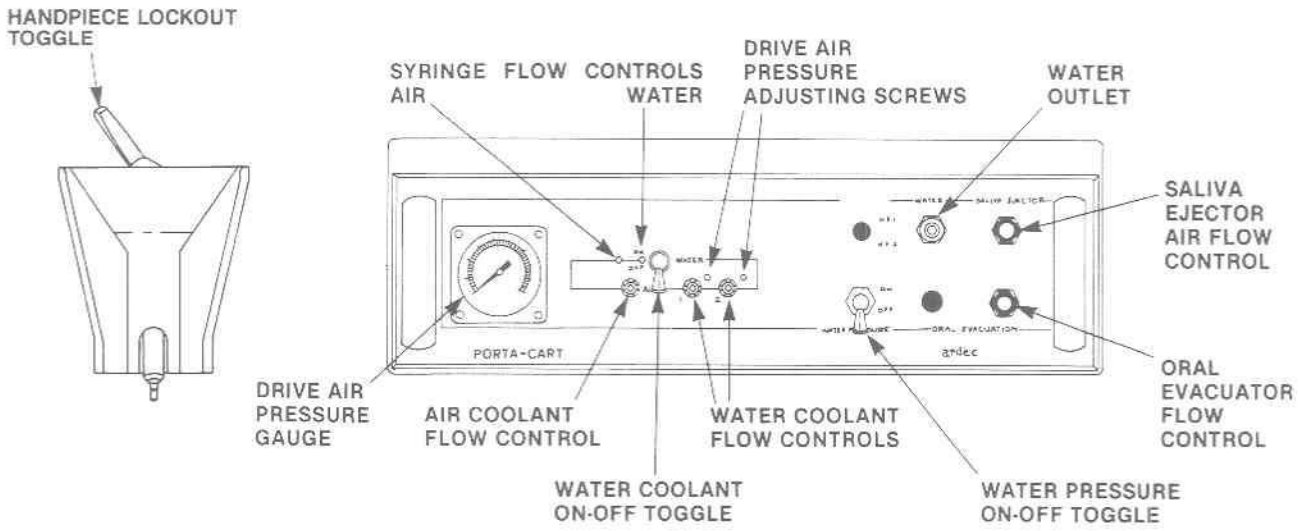


FIGURE 14

CONTROL FUNCTIONS

AIR COOLANT FLOW CONTROL adjust the flow of air coolant to the handpieces. Turned fully clockwise, it completely shuts off the air coolant.

WATER COOLANT ON-OFF TOGGLE (or wet/dry toggle) is used for manually cutting off the flow of water coolant to the handpieces.

WATER COOLANT FLOW CONTROLS independently adjust the flow of water coolant to each of the handpieces.

AUTOMATIC HANDPIECE HOLDER activates the handpiece. When a handpiece is lifted from its holder, a valve inside the holder allows drive air and coolant to reach the handpiece.

HANDPIECE LOCK-OUT TOGGLE overrides the automatic handpiece control function. It is used to "lock-out" a handpiece when two handpieces are out of their holders at the same time. Flip the toggle away from the red dot to lock-out a handpiece. For normal operation, flip all toggles toward the red dot.

WATER PRESSURE ON-OFF TOGGLE is used to pressurize and de-pressurize the water tank.

WATER OUTLET is provided for connecting accessories to the self-contained water supply. The outlet is a standard quarter-inch female quick-disconnect.

ORAL EVACUATOR FLOW CONTROL adjusts the vacuum generated in the AVS handpiece. Turn the knob clockwise to decrease vacuum, or counter-clockwise to increase vacuum.

SALIVA EJECTOR CONTROL adjusts the amount of suction generated in the air saliva ejector. Turn the knob clockwise to decrease suction and shut off the ASE; or counter-clockwise to turn the ASE on and increase suction.

FOOT CONTROL VALVE (Figure 15) controls the handpiece speed, and provides an air signal for the air and water coolant.

CHIP BLOWER BUTTON on the foot control provides a jet of air from the handpiece air coolant tube when the handpiece is not running.

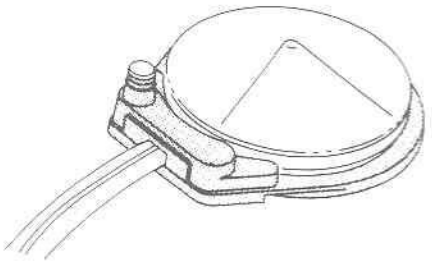


FIGURE 15

PREPARATION FOR USE

1. Be sure the Water Pressure On-Off toggle (Figure 16) is turned OFF. Press the vent button on the water tank cap to ensure that there is no air pressure in the tank. Remove the cap, and use the funnel to fill the tank. After reinstalling the water tank cap, verify that the vent button is not in the locked position.
2. Install the sterilized syringe tip, oral evacuator tip, and saliva ejector mouthpiece.
3. Connect the air supply tubing to a supply of dry, filtered air or bottled gas (nitrogen or CO_2) regulated to 80-100 psi.
4. Turn the Water Pressure On-Off toggle ON, then check the air and water pressure gauges. Air pressure should be 60 to 80 psi, and water pressure should be 30 to 40 psi. Instructions for adjusting air and water pressures are in the Maintenance section.

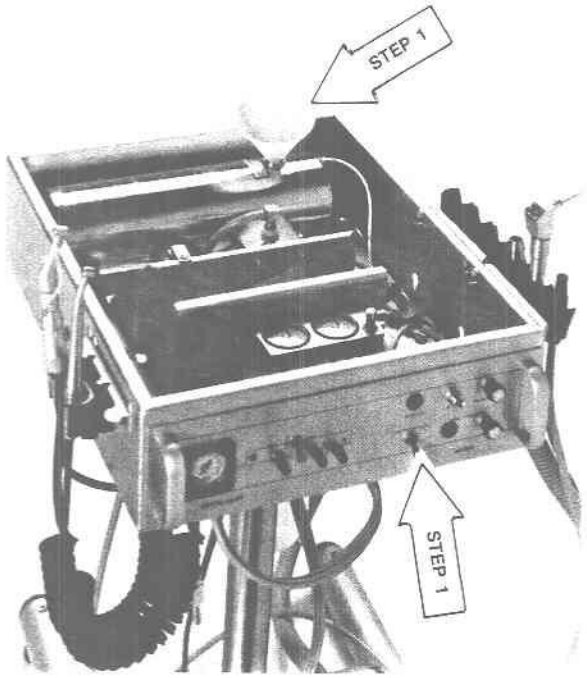


FIGURE 16

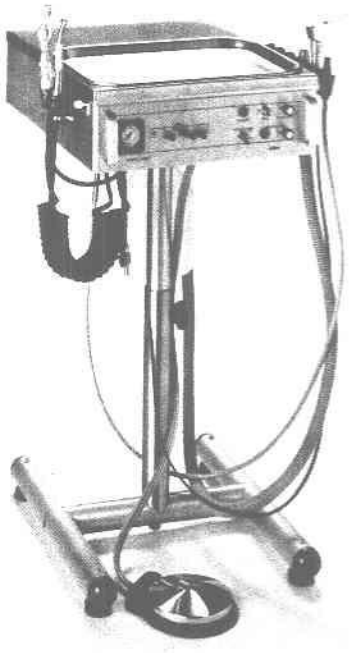


FIGURE 17

IMPORTANT

Do not leave the unit connected to a live air supply when it is not in use. Whenever the Porta-Cart is unattended, the air supply should be shut off or disconnected and the Water Pressure On-Off toggle should be turned OFF.

USE OF THE ACCESSORIES

Soft Touch Button Syringe

DESCRIPTION A-dec's Soft Touch Button Syringe is a three-way air and water syringe featuring a quick-change autoclavable tip. Because of its simple, straightforward design, this syringe requires very little maintenance. Any service that will ever be required can be performed by following the instructions in the **Maintenance** section of this book.

CHANGING THE TIP Loosen the nut a half turn and pull the used tip straight out. Insert the new tip and push it in **as far as it will go**, then retighten the nut **by hand** until it is just snug.

> IMPORTANT
>
> When changing the autoclavable syringe tip, be sure that the replacement tip is pushed **all the way** into the syringe. A tip that is not fully seated in the syringe could cause the water button to be ejected from the syringe when the air button is pressed.

TIP ROTATION You have the option with this syringe of having either a rotating or non-rotating tip. The syringe is assembled at the factory so that the tip may be easily rotated to spray in different directions. However, if you wish to have the tip locked firmly against rotation, this can be done by removing the nut and exchanging sleeves (refer to Figure 18).

For a non-rotating tip, use the white plastic sleeve (23-0887-00), which is packaged in the Porta-Cart Accessory Kit. For a rotating tip, use the metal sleeve (23-0886-00).

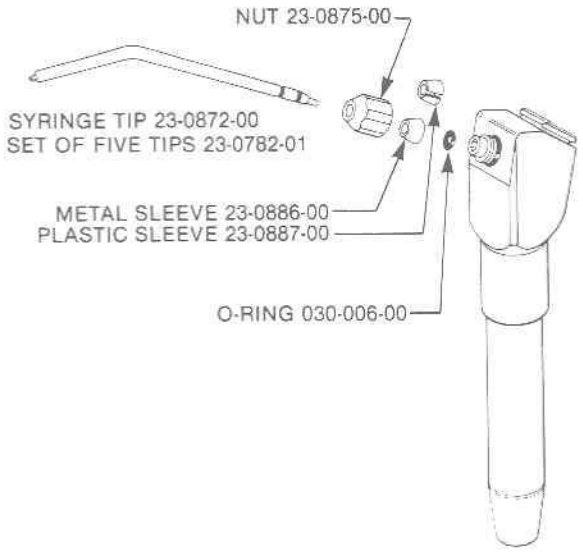


FIGURE 18

Air Vacuum System

DESCRIPTION The A-dec Air Vacuum System provides assistant's vacuum instrumentation without the need for a central vacuum pump. The system includes an AVS Oral Evacuator, Air Saliva Ejector, solids separator, and a waste container (refer to Figure 19). The system has provisions for adding a second AVS Oral Evacuator assembly (not furnished).

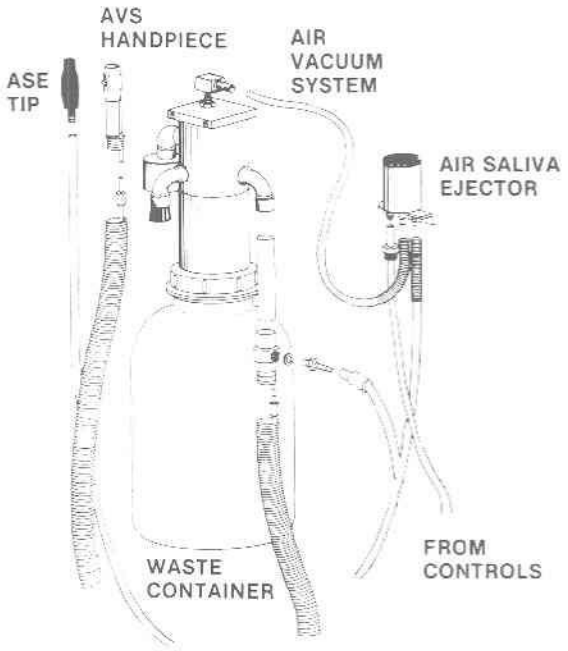


FIGURE 19

> IMPORTANT
>
> Before operating the Air Vacuum System, be sure the waste container is installed. Refer to the **Unpacking and Assembly** section on page 6.

AVS ORAL EVACUATOR Press the button on the AVS Handpiece to actuate the vacuum. To lock the button in the ON position, press and turn it. The amount of suction generated by the AVS Handpiece can be adjusted with the Oral Evacuator Flow Control (Figure 14). Turn the knob clockwise to decrease suction or counter-clockwise to increase it.

AIR SALIVA EJECTOR To operate the Air Saliva Ejector, turn the Saliva Ejector Control (Figure 14) counter-clockwise until the desired suction is attained. Turn the knob clockwise to shut the Air Saliva Ejector OFF.

Water Tank

The self-contained water tank is pressurized by regulated system air when the Water Pressure On-Off Toggle (Figure 14) is in the ON position. To refill the tank, turn the Water Pressure On-Off Toggle OFF and press the vent button on the filler cap to depressurize the water tank. Remove the filler cap, and fill the tank using the funnel that is stored inside the Porta-Cart.

Note that there is a quick-disconnect coupler at the water tank outlet. This allows the Porta-Cart to be connected to an external water supply when one is available.

> IMPORTANT
>
> Do not leave the unit connected to an external water supply when it is unattended.

ROUTINE ADJUSTMENTS

Drive Air Pressure

The maximum dynamic air pressure must be adjusted according to the handpiece manufacturer's specifications. Refer to the instruction manuals provided with the handpieces.

1. The drive air pressure adjusting screws are next to the water coolant knobs on the faceplate of the unit (Figure 20). A 3/32-inch hex wrench will fit these screws.

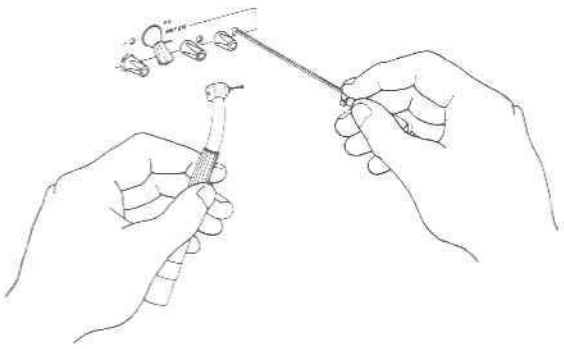


FIGURE 20

2. Install a bur in the handpiece. No handpiece should be operated without a bur in the chuck.

> IMPORTANT
>
> No dental handpiece should be run more than a few seconds at a time unless it is actually cutting. The drive air pressure adjustment should be done in several steps to prevent damage to the handpiece.

3. Run the handpiece and watch the drive air pressure gauge. Adjust the screw until the handpiece runs at the specified maximum pressure when the foot control is fully depressed. Turn the screw clockwise to decrease pressure, or counter-clockwise to increase pressure.

   Do not turn the screw counter-clockwise beyond the point where the drive air pressure stops increasing. It is possible for the screw to come clear out of the control block.

Handpiece Coolant Flow

1. Turn the Water Coolant On-Off Toggle OFF. Install a bur in the handpiece.
2. Run the handpiece at medium speed—**not at maximum speed**, and never for more than a few seconds unless actually cutting. Adjust the Air Coolant Flow Control for the desired air flow. A strong flow is recommended.
3. Turn the Water Coolant Flow Control clockwise until is seats softly. Turn the Water Coolant On-Off Toggle ON.
4. With the handpiece running, turn the Water Coolant Flow Control counter-clockwise until a fine mist is visible around the bur. It takes very little water to provide excellent cooling with fog spray.
5. Adjust the Water Coolant Flow Control for both handpieces by this method, without readjusting the Air Coolant Flow Control.

Syringe Flow

1. Identify the Syringe Flow Adjusting Screws (refer to Figure 14) on the front of the Porta-Cart. A 3/32-inch hex wrench will fit these screws.
2. Adjust the water flow first, to achieve the desired rate. Turn the screw clockwise to decrease flow, or counter-clockwise to increase flow.
3. Press both buttons together and adjust the air flow to achieve the desired spray pattern.

> IMPORTANT
>
> The syringe flow adjusting screws are not intended to completely stop the air or water. Forcing the screws to turn after they are bottomed out may damage the unit.

CARE OF THE UNIT

Surface Cleaning

All external surfaces of the Porta-Cart may be cleaned using a solution of hot water and liquid detergent. Abrasive cleansers and scrubbing pads will damage the finishes, and should **never** be used. The entire unit should be thoroughly cleaned at least once a day.

Surface Disinfecting

Any external surfaces of the unit that are contacted during use should be carefully wiped down with a disinfectant between patients. It is further recom-

mended that at the beginning of each day the unit is in use, the entire Porta-Cart be wiped down with disinfectant.

The following disinfectants may be used with no danger of damaging the surface finishes of the unit: (1) hypochlorite solution, one part Clorox® or Purex® to ten parts water; (2) gluteraldehyde solution, Cydex® or equal; (3) phenolics, Lysol® or other products containing cresols and phenols; or (4) isopropyl alcohol. When selecting a disinfectant, consult a full-service dental supply dealer concerning the effectiveness of each product.

Cleaning the Air Vacuum System

After each patient, the AVS should be thoroughly rinsed by drawing clean water through the AVS Handpiece and the saliva ejector. After rinsing, draw air through the system for a few seconds to clear all water from the tubes. Remove the saliva ejector mouthpiece and oral evacuator tip for cleaning and sterilization.

Daily cleaning of the AVS Handpiece is necessary to prevent the accumulation of debris. Several special cleaners with disinfectant properties for dental vacuum systems are available from dental supply dealers. If you use one of these cleaners, be sure to follow the manufacturer's recommendations. **Never** use any sudsing type of detergent for cleaning the AVS.

Use the brush provided to clean the AVS Handpiece. Push the brush all the way past the cross tube to clean the lower portion. Rinse with clean water, then hold the button down until all the water has been purged from the tubing.

The rubber tip on the saliva ejector tubing can be easily removed for cleaning and disinfecting. To reinstall the tip, push and twist until it snaps into place. Do not lubricate the tip.

The Air Vacuum System and Air Saliva Ejector are equipped with strainers to prevent solids from entering the waste container. These strainers should be cleaned at least once a week.

To clean the AVS strainer, remove the waste container, then unscrew the collector cup from the AVS body (Figure 21). It is not necessary to remove the strainer from the collector cup for cleaning.

To clean the Air Saliva Ejector strainer, remove the cap from the ASE (Figure 21). Unscrew the knurled screw that holds the strainer to the inside of the cap. Use the AVS Oral Evacuator to remove any solids from the Air Saliva Ejector body.

The AVS waste container should be cleaned and disinfected each time it is emptied.

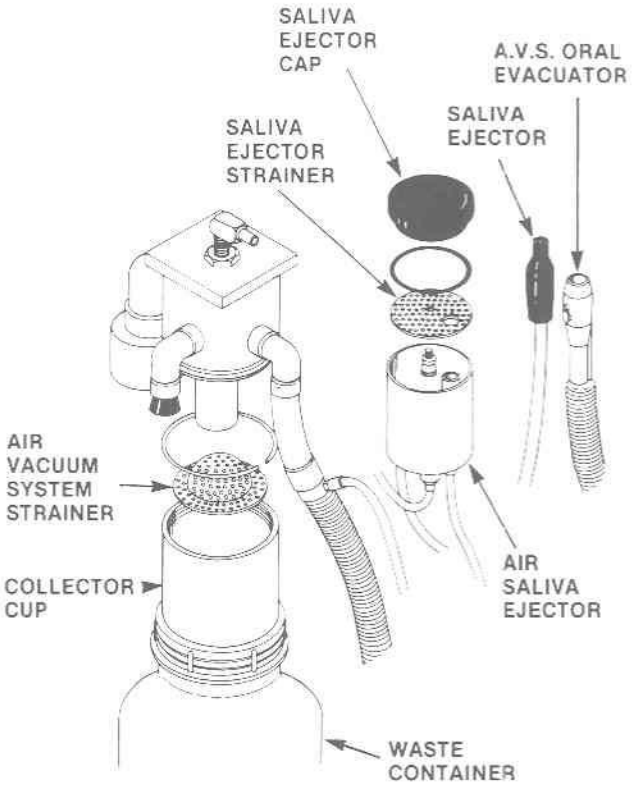


FIGURE 21

Instrument Sterilization

Syringe tips, oral evacuator tips, and surgical tips, should be sterilized before use, using the processes recommended below. Before sterilization, all instrument surfaces should be thoroughly cleaned with surgical soap.

SYRINGE TIPS should be sterilized by means of steam autoclave, chemical vapor, dry heat, or ethylene oxide gas processes.

STAINLESS STEEL ORAL EVACUATOR TIPS may be subjected to the same hot sterilization processes recommended for the syringe tips.

GRAY PLASTIC ORAL EVACUATOR TIPS (optional—not provided) are suitable only for cold sterilization processes. Consult your dental supply dealer for recommendations on the various solutions available for cold sterilization.

A-DEC SURGICAL TIPS (optional—not provided) for the AVS Oral Evacuator and Air Saliva Ejector should be sterilized by a cold process or by the ethylene oxide gas process. The surgical tips should **never** be subjected to temperatures in excess of 200°F (95°C).

SYSTEM SHUT-DOWN

The following steps should be taken when the Porta-Cart is being shut down for any period in excess of eight hours.

1. Turn the Water Pressure On-Off toggle OFF. Insert the quick-disconnect fitting from the Porta-Cart Accessory Kit (see page 52) into the Water Outlet on the faceplate.
2. Turn the Water Pressure On-Off toggle ON, and allow the water tank to completely drain through the Water Outlet; then turn the Water Pressure On-Off toggle OFF, and remove the quick-disconnect fitting.
3. Clean the AVS Handpiece and the Air Saliva Ejector by following the instructions in the **Cleaning the Air Vacuum System** section on page 11.
4. Empty the AVS waste container, then clean and disinfect it.
5. Clean and lubricate the handpieces, as specified by the manufacturer.
6. Disconnect the air supply tube, and bleed air pressure from the unit by pressing the syringe air button.
7. Thoroughly clean the external surfaces as specified in the **Care of the Unit** section on page 10.

PREPARATION FOR STORAGE OR TRANSPORTATION

PRELIMINARY STEPS

1. Conduct all the steps given in the **System Shut-Down** section on page 12.
2. Clean the solids strainers in the Air Vacuum System (refer to Figure 21) according to the instructions in the **Cleaning the Air Vacuum System** section on page 11.
3. Pack the handpieces in their cases, as specified by the manufacturer.

REPACKING THE PORTA-CART

1. Remove the Syringe and handpiece tubings from their hangers and feed them back through the bottom of the unit. Lay them along the sides, as shown in Figure 22.
2. Pull the AVS Oral Evacuator and Air Saliva Ejector tubings back into the unit, and coil them as shown in Figure 23.
3. Loosen the thumbscrews that secure the instrument hanger bar assemblies to the unit. Lift them from their slots, and reinstall them **upside-down** inside the Porta-Cart (Figure 23).
4. Feed the foot control tubing up into the unit, then use the elastic cord to secure the foot control as shown in Figure 24.
5. Loosen the thumbscrews (Figure 24) that secure the Porta-Cart to the frame assembly. Lift the unit from the frame.

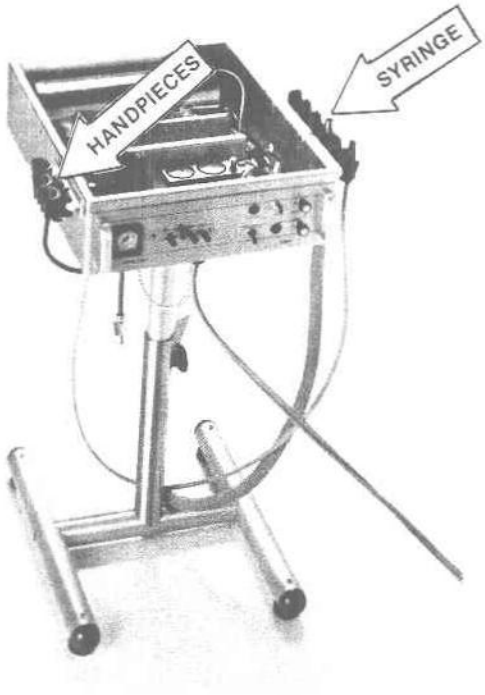


FIGURE 22

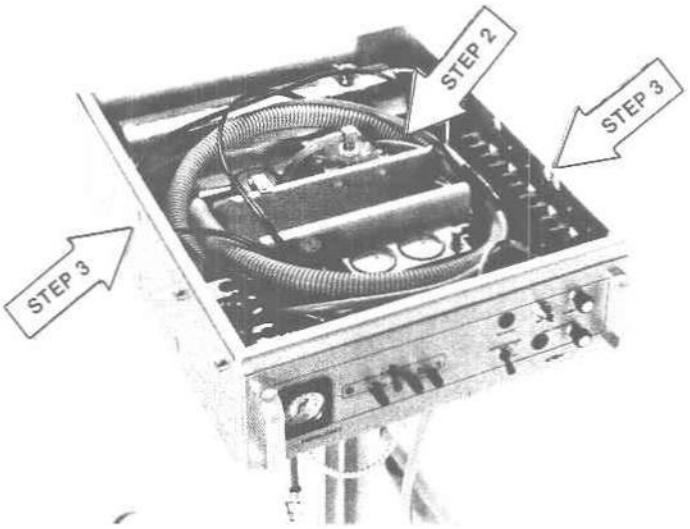


FIGURE 23

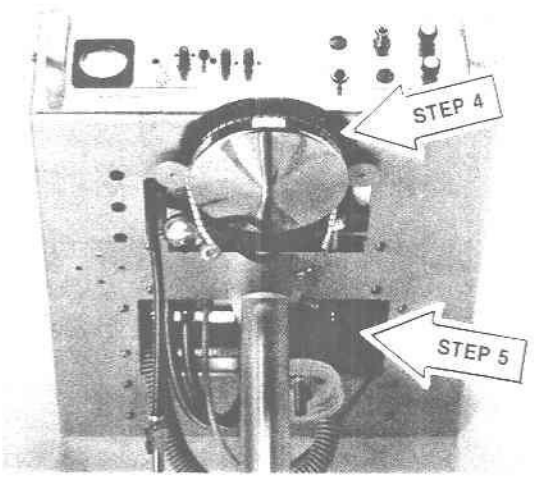


FIGURE 24

6. If the casters are installed on the frame base, use a 5/32-inch hex wrench to remove them and reinstall the foot pads (refer to Figure 9 on page 5). Pack the casters into the accessory kit case.
7. Use the 3/4-inch open end wrench from the accessory kit to remove the capscrew that secures the post assembly to the frame base.
8. Use the same capscrew to secure the frame base to the underside of the unit (Figure 25).

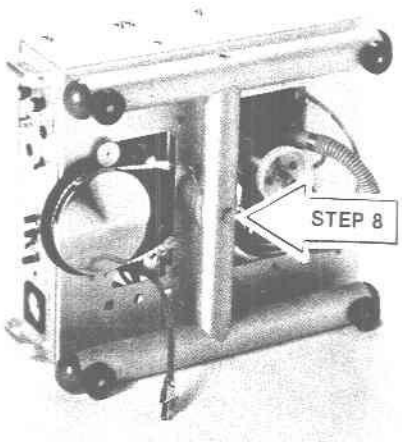


FIGURE 25

9. Pack the accessory kit items into their case; then pack the post assembly, waste container, and accessory kit into the Porta-Cart carrying case. Coil the 10-foot air supply tubing and lay it in the bottom of the case, and position the foam pad as shown in Figure 26.

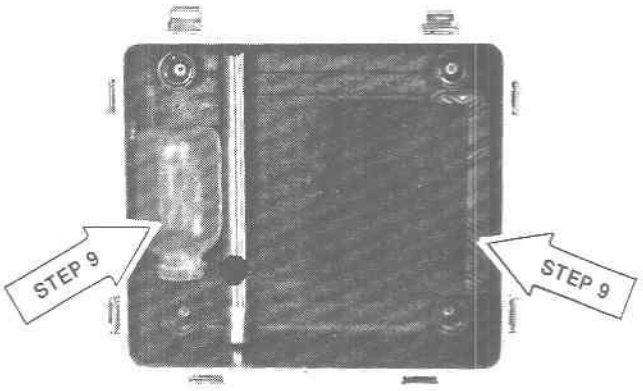


FIGURE 26

10. Carefully lower the Porta-Cart into the carrying case, so the front of the unit faces the side of the case with the air relief valve (Figure 27).

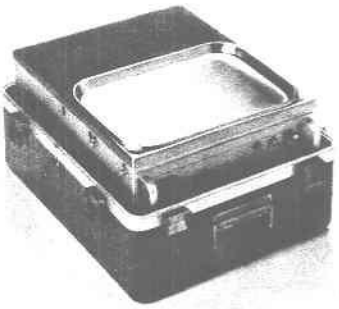


FIGURE 27

11. Place the instruction manual in the tray on top of the Porta-Cart. Place the foam pad over the unit (Figure 28), then install the cover on the case. Close the air relief valve.

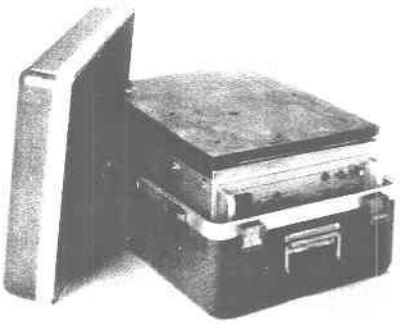


FIGURE 28

MAINTENANCE

GENERAL SERVICE INFORMATION

Parts Inspection

In the Troubleshooting Guides in this manual you will find references to the "seal area" as location of possible defects. The seal area is comprised of the seal itself (usually an O-ring), the bore or seat in the valve body, and the O-ring groove in the valve stem or piston. Defects in any of these may result in seal leakage, so an inspection of the seal area includes a careful examination of all sealing parts and surfaces. A magnifier, as shown in the **Special Tools and Equipment** section, is essential for detecting flaws that are too small to see otherwise.

When servicing components that have rubber gaskets or diaphragms, it is generally advisable to install new ones when reassembling the components. If the old gasket or diaphragm is to be reused, carefully check for pin holes or cracks.

Cleaning Internal Parts

When servicing dental systems, the parts of any component disassembled should be thoroughly cleaned and inspected for defects before reassembly. The lubricant recommended for these parts is largely impervious to chemical solvents, so the most effective cleaner is a hot detergent solution. Any wiping should be done with a soft, lint-free cloth. Flush all parts with clear, hot water, then rinse them in isopropyl alcohol.

Lubrication

A-dec Silicone Lubricant, part no. 98-0090-00, is a high quality silicone base grease that is ideal for lubricating the internal moving parts, O-rings, and oral evacuator valves. An acceptable substitute for the A-dec lubricant is Dow-Corning No. 103 Silicone Lubricant.

Before installing O-rings, always apply a light coating of silicone grease. This makes installation easier, and will prevent the O-rings from being damaged. The seal bores should also be lightly lubricated before inserting stems or pistons.

A-dec Tubing

The tubing used throughout A-dec dental units is specially engineered for durability and long life. Use only A-dec tubing for replacement.

When troubleshooting the system, bear in mind that although this tubing is resistant to crimping, it nevertheless can become crimped and obstruct the flow. Crimps are often caused by the tubing being too short, so that it is stretched at the barb connection. Remember when installing any tubing that slack tubing rarely becomes crimped, and allow adequate length.

Special Tools and Equipment

HEMOSTATS

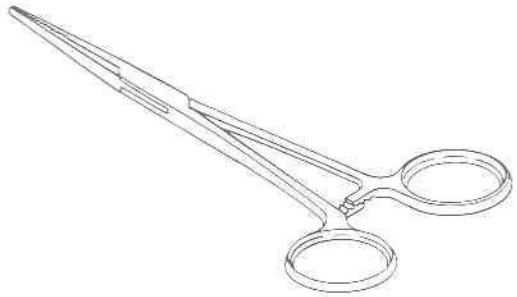


FIGURE 29

These are useful for temporarily stopping air or water flow through the tubing while troubleshooting or repairing the unit. A-dec part no. 009-008-00.

VALVE TEST SYRINGE

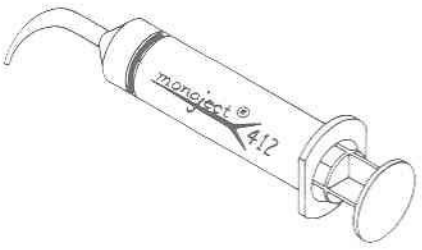


FIGURE 30

This is used for making quick tests of pilot-operated valves. It can apply a static pressure of 5 to 75 psi. A-dec part no. 98-0050-00.

TEST GAUGE

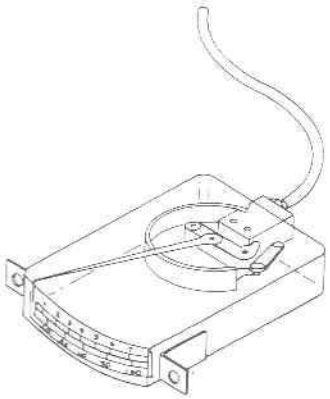


FIGURE 31

Use an A-dec air pressure gauge with a 0-100 psi range. This is for checking air pressure at various points while troubleshooting the system. A-dec part no. 026-078-00. Also required for use of this gauge: Barbed Fitting, Washer and Sleeve Clamp Kit, A-dec part no. 023-028-00; Tee Barb and Sleeve Clamp Kit, A-dec part no. 023-014-00; and a two-foot length of 1/8-inch tubing, A-dec part no. 024-015-00.

SNAP RING PLIERS

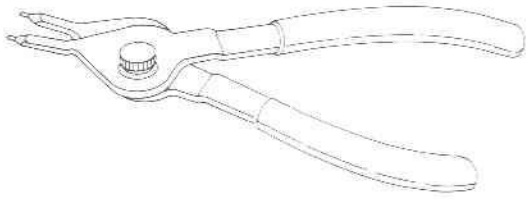


FIGURE 33

These snap ring pliers are for both inside and outside snap rings, and fit all sizes used in A-dec equipment. A-dec part no. 009-007-00.

TUBING PLIERS

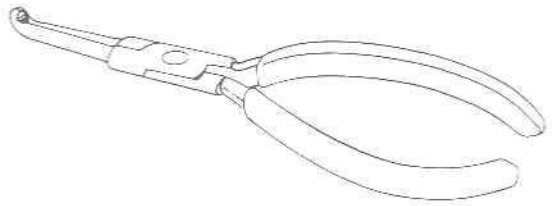


FIGURE 32

These modified pliers are used for pushing 1/8-inch tubing onto the barbed fittings. A-dec part no. 009-014-00.

POCKET MAGNIFIER

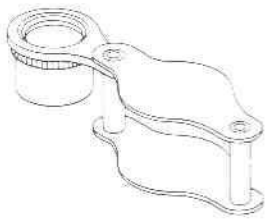
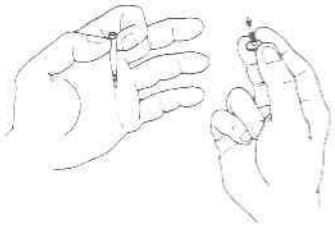


FIGURE 34

This is a 10X magnifier for inspecting for defects in miniature valve parts. A-dec part no. 009-009-00.

O-RING INSTALLATION TOOLS

1. Slip O-Rings onto the pointed end of the tool.
2. Insert the valve stem into the hollow end of the tool.



3. Align the end of the tool with the O-ring groove in the stem.
4. Slide the O-Ring off the tool, into the groove.

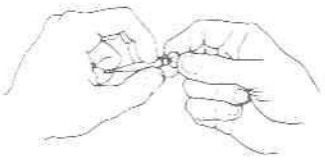


FIGURE 35

These tools enable you to make quick repairs, in the field, on most A-dec miniature components. The tools in this set fit the four smallest O-ring sizes in A-dec equipment. A-dec part no. 009-013-00.

BASIC TROUBLESHOOTING

Given proper care, your Porta-Cart will provide years of reliable service. In the event that something does go wrong with the unit, this troubleshooting guide tells what can be done in the operatory, **before** removing the unit for repair.

This troubleshooting guide is not intended to isolate every problem that could arise. Rather it is designed so that you can quickly identify the problems that can be repaired without special training or equipment.

If the procedures given here do not identify and correct the problem, much more detailed instructions are given in the sections covering the individual components of the Porta-Cart system.

Neither of the Handpieces Work (No Air or Water)

1. Does the syringe work?
   Yes: Check for a pinched or crimped foot control tubing. If the tubing is okay, refer to the **Foot Control** section on page 28.
   No: Proceed to Step 2.
2. Is the air supply (compressor or bottled gas system) turned ON and operating properly?
   Yes: Proceed with Step 3.
   No: Correct any problems in the air supply, then re-test the unit.
3. Is the air supply tubing properly connected?
   Yes: Refer to the **Regulators** section on page 19.
   No: Connect the air supply tubing, and re-test the unit.

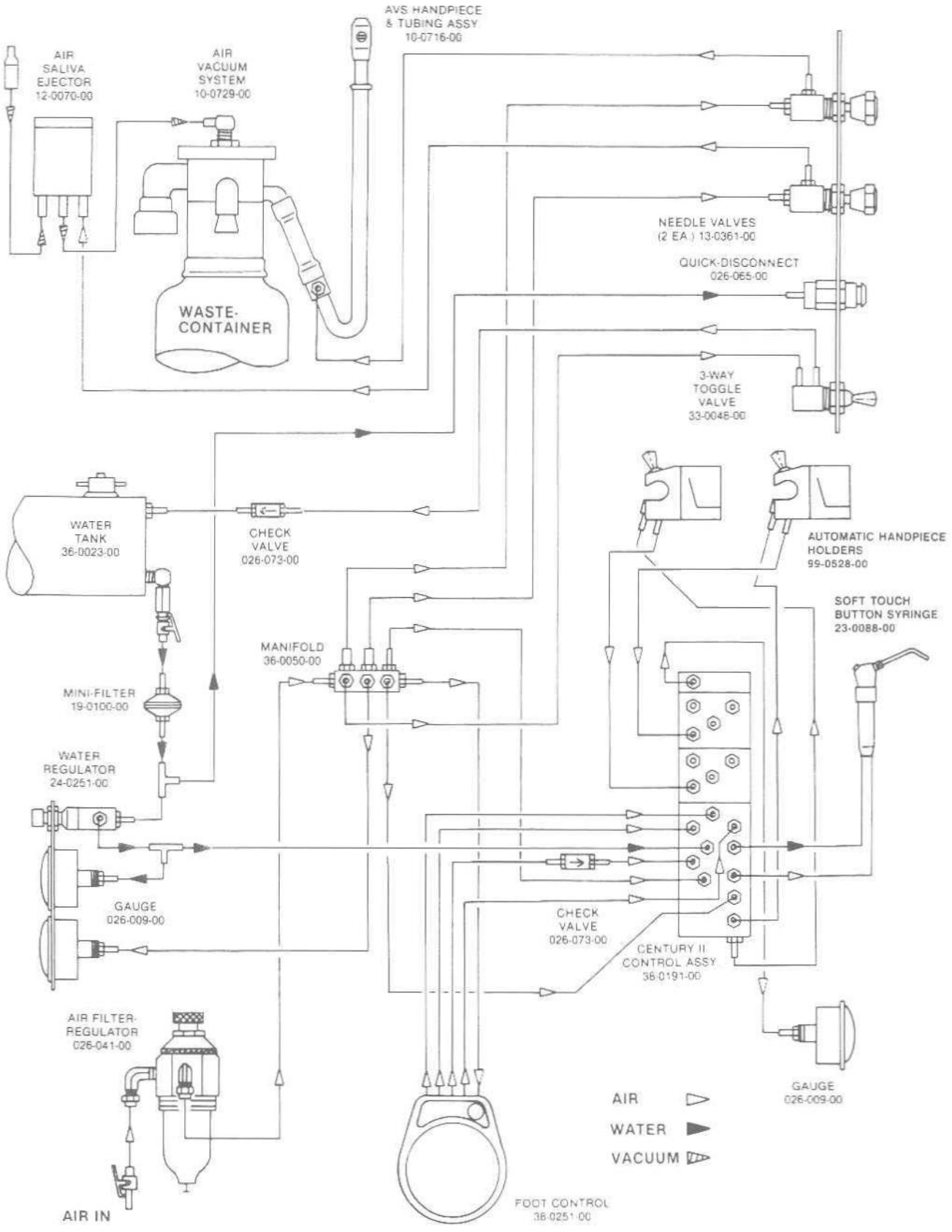
No Water Coolant From Either Handpiece

1. Test the syringe. Does it spray water?
   Yes: Proceed with Step 2.
   No: Verify that there is water in the tank and that the Water Pressure On-Off toggle is turned ON.
2. Check the controls. Is the Water Coolant On-Off Toggle ON? Are the Water Coolant Flow Controls OPEN?
   Yes: Proceed with Step 3.
   No: Set the controls as specified and re-test the unit.
3. Does the handpiece air coolant work?
   Yes: Refer to the **Century II Control System** section on page 20.
   No: Refer to the **Signal Relay** section on page 30.

Insufficient Drive Air Pressure

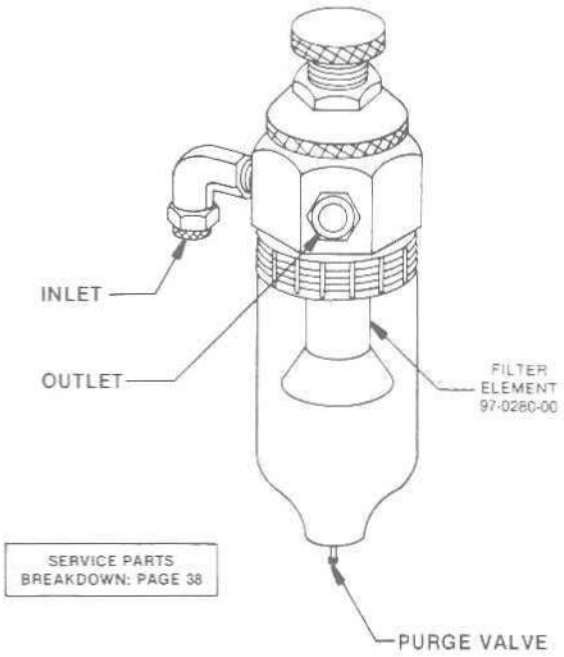
1. Does the problems affect both handpieces?
   Yes: Proceed to Step 2.
   No: Refer to the Drive Air Pressure adjusting procedure in the **Routine Adjustments** section on page 10.
2. Check the system air pressure gauge. Does it show a pressure of at least 60 psi?
   Yes: Proceed to Step 3.
   No: Refer to the **Regulators** secton on page 19.
3. Watch the system air pressure gauge while pressing the syringe air button. Does the pressure drop by more than 15 psi?
   Yes: Remove and inspect the air filter according to the instructions in the **Filters** section on page 18.
   No: Refer to the **Foot Control** section on page 28.

SCHEMATIC DIAGRAM



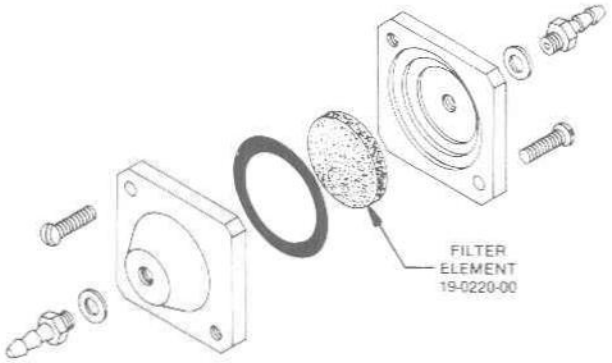
FILTERS

AIR FILTER/REGULATOR



SERVICE PARTS BREAKDOWN: PAGE 38

IN-LINE MINI-FILTER



SERVICE PARTS BREAKDOWN: PAGE 37

FIGURE 36

Description

The air and water supplies pass through filters before entering the regulators. The filter elements should be serviced when they become sufficiently clogged to impede the flow to the regulators.

Checking the Filters

To check the condition of the filter elements, remove the top of the Porta-Cart, and connect the unit to its air supply. Be sure there is water in the tank or that the water supply tube is connected to an external water source.

Watch the system pressure gauges while pressing the syringe buttons. The maximum pressure drop for air is 15 psi, and for water is 10 psi. If the pressure drops by any more than this while operating the syringe, the element is clogged and must be serviced.

Air Filter Service

The air filter consists of a replaceable filter element (97-0280-00) housed in a transparent bowl attached to the bottom of the regulator. It also serves as a moisture separator. When liquid accumulates in the bowl, it should be released by pressing the purge valve.

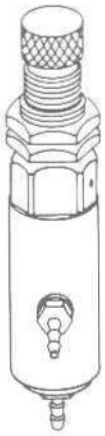
To replace a clogged air filter element, disconnect the air supply tube, and relieve pressure from the unit by pressing the syringe button and venting the water tank. Unscrew the bowl from the regulator, then unscrew the filter element retainer. A replacement element is included in the Air Filter-Regulator Service Kit (90-0030-00) in the Porta-Cart Accessory Kit.

Water Filter Service

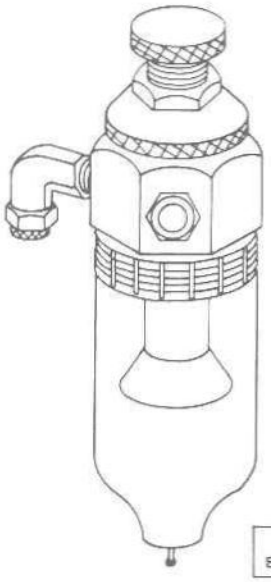
The water is filtered by an in-line Mini-filter (19-0100-00) with a reusable porous disc filter element. Disconnect the water supply tube from the water tank before servicing the filter. Remove the screws that hold the filter housing together, then separate the housing and remove the filter disc (19-0220-00). Clean the disc with isopropyl alcohol, then thoroughly dry it with the AVS handpiece. Be sure the O-ring is properly positioned when assembling the filter housing.

REGULATORS

WATER REGULATOR
24-0251-00



AIR FILTER-REGULATOR
026-041-00



SERVICE PARTS BREAKDOWN: PAGE 38

FIGURE 37

Pressure Adjustment

The regulated air and water pressures are indicated on the gauges inside the Porta-Cart. Air pressure should be 60 to 80 psi, and water pressure should be 30 to 40 psi.

Before adjusting the air or water regulators, verify that the air supply tube is connected to an 80-100 psi source. Do not attempt to adjust the air regulator if supply pressure is less than 80 psi. Be sure there is water in the tank or that the water supply tube is connected to an external water source. Check the filters as explained in the **Filters** section before adjusting the regulators.

If adjustment of either the air or water pressure is required, turn the regulator knob clockwise to increase pressure or counter-clockwise to decrease pressure. When adjusting to decrease pressure, it is necessary to relieve the pressure in the system before reading the gauge. Do this by pressing the syringe buttons.

Servicing the Air Regulator

The Air-Filter Regulator (026-041-00) used in the Porta-Cart is subject to only three types of problems: (1) Clogged Filter Element; (2) External Leakage; and (3) Internal Leakage.

FILTER ELEMENT Service of the filter element is covered in the **Filter** section on page 18.

EXTERNAL LEAKAGE In the event of external leakage from the air filter/regulator, take the following action according to the point of leakage:

1. Leakage from the purge valve at the bottom of the filter bowl results from a loose or defective valve core. Try tightening the valve core. If the leaking persists, replace the valve core. A replacement valve core is included in the Air Filter/Regulator Service Kit (90-0030-00) in the Porta-Cart Accessory Kit.
2. Leakage around the top of the filter bowl results from the bowl not being screwed tightly onto the regulator or from a defective O-ring seal. Try tightening the bowl. If the leaking persists, install a new O-ring (030-023-00).
3. Leakage around the top of the regulator results from a loose cover or a defective diaphragm assembly. If tightening the cover does not stop the leak, replace the diaphragm. A new diaphragm assembly (97-0200-00) is included in the Air Filter/Regulator Service Kit (90-0030-00) in the Porta-Cart Accessory Kit.

INTERNAL LEAKAGE If the air pressure gauge indicates that the pressure creeps upward when the unit is not being used, there is air leaking past the inlet seal. This can normally be corrected by replacing the poppet (97-0240-00), included in the Air Filter/Regulator Service Kit (90-0030-00) in the Porta-Cart Accessory Kit. When installing the new poppet, be certain that there is no foreign material on the sealing surfaces in the valve body.

Servicing the Water Regulator

The Water Regulator (24-0251-00) is basically a non-repairable component. External leakage around the inlet or outlet can be corrected by tightening the fitting or replacing the nylon washer (004-005-00). Leakage around the adjusting knob or erratic water pressure are indications of internal leakage. Install a new regulator.

CENTURY II CONTROL SYSTEM

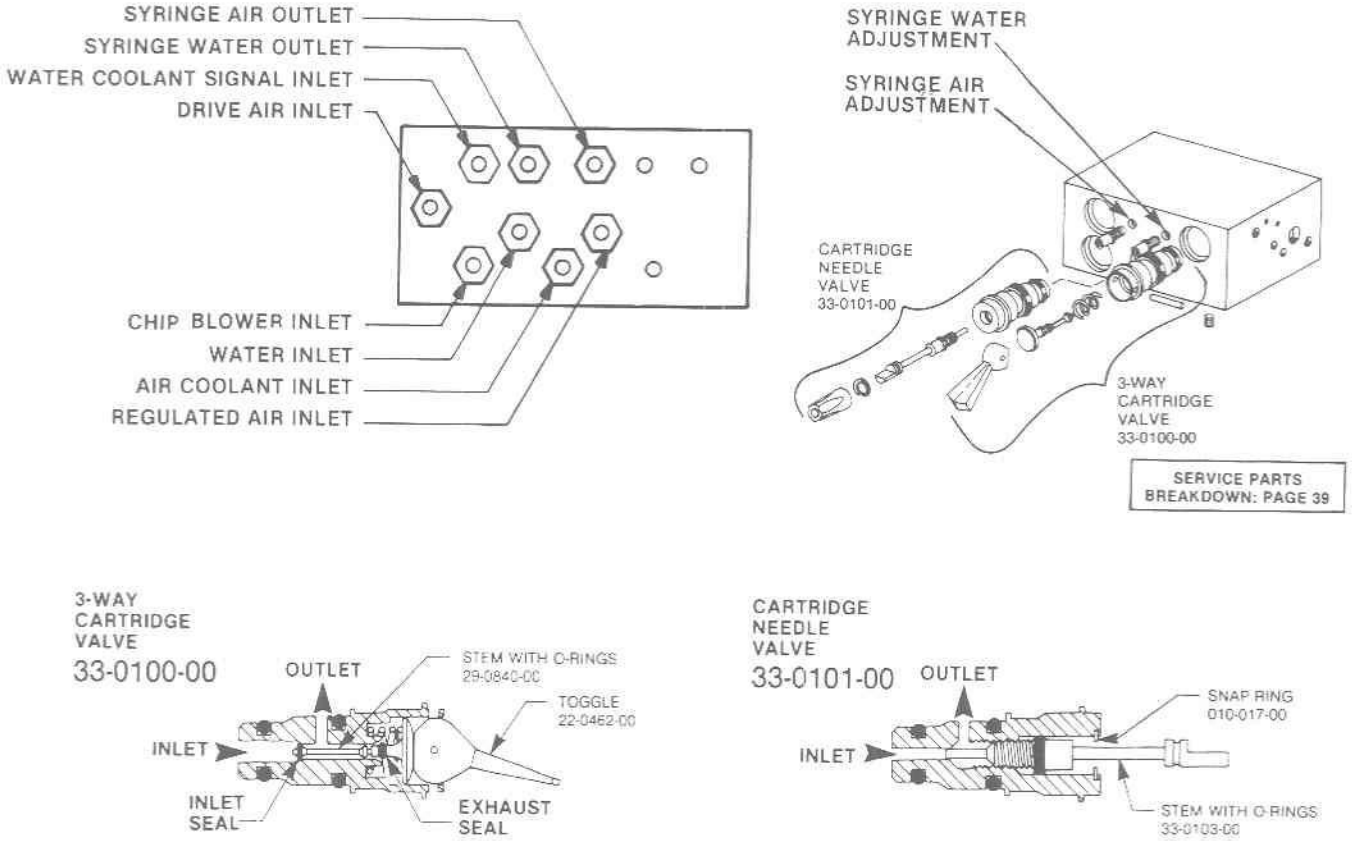


FIGURE 38

The Porta-Cart use a two handpiece Century II control system (38-0191-00). The system consists of a Master Block Assembly and two Control Block Assemblies. These are explained in detail below, and troubleshooting guides are provided for each section.

Century II Master Block

DESCRIPTION The A-dec Century II Master Block houses the Air Coolant Flow Control, the Water Coolant On-Off Valve, and the Syringe Flow Controls. All the working components are accessible from the front of the unit and are of "cartridge" design, so they can be serviced without disconnecting any tubing.

The Water Coolant On-Off Valve is a cartridge type three-way valve (33-0100-00), and the Air Coolant Flow Control is a cartridge type needle valve (33-0101-00). While it is normally more economical to replace these Cartridge Valves than it is to repair them, instructions for repairing them are included here and may be used if a replacement valve is not readily available.

CARTRIDGE VALVE REPLACEMENT

1. The Cartridge Valves are flanged so they cannot be removed as long as the faceplate is in front of the Master Block. Pull the knobs off the Air and Water Coolant Flow Controls.
2. Remove the two screws that secure the Master Block to the faceplate. Move the Century II assembly back to get access to the Cartridge Vavles.
3. Disconnect the air supply and bleed all pressure from the system.
4. Loosen the set screw that secures the valve in the Master Block. The set screws are on the bottom of the Master Block.
5. Pull the Cartridge Valve out of the Master Block. If the valve cannot be pulled out by hand, use pliers on the toggle or stem.
6. Before installing the replacement valve, lightly coat the O-rings with silicone grease. Push the valve in until it is fully seated. On toggle valves, be sure that the ON and OFF positions are properly oriented. **Firmly tighten the set screw.**
7. Reinstall the Century II assembly on the faceplate.

Century II Master Block Troubleshooting

SYMPTOM	POSSIBLE CAUSE	TEST PROCEDURE	CORRECTIVE ACTION	
			IF TEST IS NORMAL	IF TEST IS ABNORMAL
Air or water leaks from around the syringe flow controls.	Defective o-ring seal on the stem.	Disconnect the air supply, and bleed the system pressure, remove the flow control stem. Inspect the o-ring and bore for defects.	If no defects are found, clean all parts. Lubricate the o-ring. Reassemble and test the unit.	Replace any defective parts. Clean the bore and stem, and lubricate the o-ring. Reassemble and test the unit.
Air leakage from a Cartridge Toggle Valve that is turned ON.	Defective exhaust seal in the Cartridge Valve.	Isolate the source of the leakage, using a soap solution, if necessary. When testing for leakage from the Water Coolant On-Off Valve, the Foot Control must be depressed. Leakage around the toggle confirms that the exhaust seal is defective.	If there is no leakage around the toggle, proceed with the next step.	If the leakage is around the toggle remove and disassemble the Cartridge Valve. Inspect the exhaust seal area. Replace any defective parts. Re-assemble and test the unit.
	Defective o-ring seal around the Cartridge Valve.	If the leakage is around the perimeter of the valve, the o-ring around the center of the Cartridge valve is not sealing.	If there is no leakage here or around the toggle, check for leakage from nearby components or barbs on the Master Block.	If the leakage is around the perimeter, remove the Cartridge Valve. Inspect the o-ring, its seat, and bore. Replace any defective parts. Re-assemble and test the valve.
Air leakage from a Cartridge Toggle Valve that is turned OFF.	Defective inlet seal or defective o-ring seal around the Cartridge Valve.	Remove the Cartridge Valve from the Master Block, and inspect the o-ring around the rear of the valve, the o-ring seat, and the bore in the Master Block.	If there are no apparent defects in these areas, disassemble the valve and inspect the inlet seal area.	Replace any defective parts. Re-assemble and test the unit.
No air coolant from either of the handpieces (water coolant works properly).	The Air Coolant Flow Control is closed.	Turn the Air Coolant Flow Contol counter-clockwise while running a handpiece.	If the air coolant starts flowing, adjust for the desired spray.	If the air coolant does not begin to flow by the time the knob is turned all the way counter-clockwise, proceed with the next step.
	Obstructed air passage in the Control block next to the Master block.	Refer to the Century II Control Block instructions for the test procedure.	If the test indicates that the Control Blocks are okay, proceed with the next step.	Take corrective action as indicated in the Control Block instructions.
	The Air Coolant flow is not getting to the Master Block.	Remove the Air Coolant Flow Control Cartridge Needle Valve from the Master Block. Turn the unit ON and step on the Foot Control. Check for a stream of air coming from the Needle Valve bore in the Master Block.	If there is a flow of air, proceed with the next step.	If there is no air, check for obstructions in the air coolant tube or the barb on the Master Block.
	Debris lodged in the Cartridge Needle Valve.	Disassemble the Air Coolant Needle Valve and clean any foreign material from the passages.	If nothing is in the Needle Valve, check the passage going to the Control Blocks.	Carefully clean all parts. Check the filter in the air supply. Reassemble and test the unit.
No water coolant from either of the handpieces (air coolant works properly).	No water supply to the Master Block.	Verify that there is water in the tank, then try spraying water from the syringe.	If water is present, proceed with the next step.	If there is no water, check at the water outlet on the front of the unit. If there is water there, check for obstructions in the water tube or the inlet barb on the Master Block.

SYMPTOM	POSSIBLE CAUSE	TEST PROCEDURE	CORRECTIVE ACTION	
			IF TEST IS NORMAL	IF TEST IS ABNORMAL
	The signal air is not getting to the Master Block.	While stepping on the Foot Control, turn the Water Coolant On-Off Valve ON and OFF. Listen for air to exhaust around the toggle each time you turn the valve OFF.	If air exhausts from the valve each time it is cycled, proceed with the next step.	If no air exhausts from the valve, look for obstructions in the signal air tube or the barb on the Master Block.
	Clogged water passage in the Master Block.	Turn the Water Pressure On-Off toggle OFF, then separate the Control Blocks from the Master Block. Momentarily turn the Water Pressure On-Off toggle ON and see if water comes from the end of the Master Block.	If water comes from the Master Block, proceed with the next step.	If no water comes out, try running a small wire through the passage, to dislodge debris from the Master Block. When you get water to flow through the block, reassemble and test the unit.
	The signal air is not getting through the Master Block.	Continuing from the proceeding step, clamp hemostats on the red tube (oral cavity water) and the orange tube with black dashes (drive air) where they go into the Master Block. Step on the Foot Control. Turn the Water Coolant On-Off Valve ON and see if the signal air comes through the passage on the end of the Master Block.	If so, check for obstructed passages in the Control Block nearest the Master Block.	If no signal air comes through the Master Block, remove the Water Coolant On-Off Valve and check for obstructions in it and the Master Block.

CENTURY II CONTROL SYSTEM, Cont.

Century II Control Blocks

DESCRIPTION The Century II Control Block is used to control the routing of water coolant and air to the handpieces. The Control Blocks are used in conjunction with the Century II Master Block and a manual selector valve to make a complete control system.

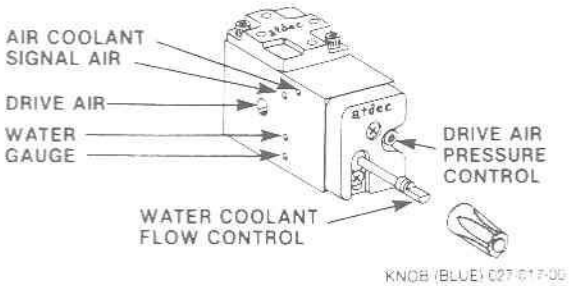


FIGURE 39

OPERATING PRINCIPLES Each of the Century II Control Blocks has laterally drilled passages for drive air, water coolant, air coolant/chip blower, and signal air. (Refer to the illustration below.) These passages line up with the outlet passages in the end of the Century II Master Block.

In each block, the lateral passages for the drive air, air coolant, and signal air intersect with longitudinal passages that lead to the front surface of the block. Parallel to these, other longitudinal passages lead to the handpiece drive air barb, the handpiece pressure gauge, the handpiece air coolant barb, and the cap for the water valve (refer to the **Control Block Detail** drawing). It is here, at the front surface of the block, that the air from the foot control is either held back or allowed to flow through and run the handpiece.

The front cover of the Control Block has three cavities in the inner surface. As indicated by the broken lines on the **Control Block Detail** drawing, these cavities in the cover correspond in location to the three groups of passages drilled in the front of the block. When the block is assembled, with the diaphragm in place between the block and the cover,

the cavities allow the diaphragm to deflect away from the surface of the block, so air can flow between the grouped passages.

CONTROL BLOCK DETAIL (FRONT VIEW)

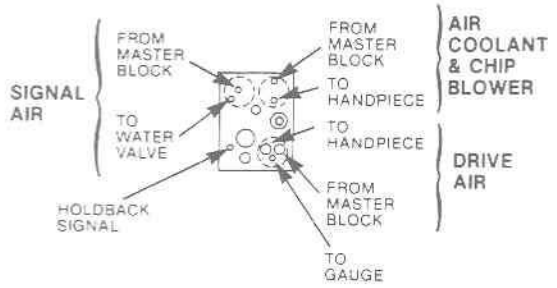


FIGURE 40

FRONT COVER DETAIL (INNER SURFACE)

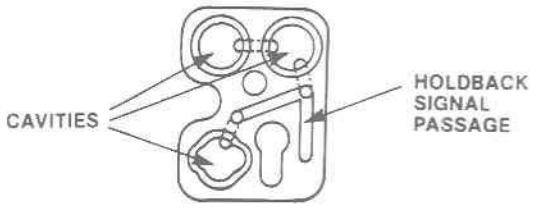


FIGURE 41

However, the flow between the grouped passages can occur **only if** the diaphragm is allowed to deflect into the cavities in the cover. Air pressure from the handpiece selector valve applied into the cavities presses and holds the diaphragm against the block. This prevents any flow between the passages, so the handpiece cannot operate.

The handpiece selector valve supplies the "holdback signal" that pressurizes cavities in the cover and shuts off the Control Block for the handpiece that is **not** being used. The selector valve releases the holdback signal from the Control Block for the handpiece selected, allowing air to pass through the block to the handpiece.

Water coolant for the handpiece is controlled by an integral water valve in the Century II Control Block. The water is supplied through a passage from the Master Block. This passage intersects with the Water Coolant Flow Control needle valve bore, as shown in the cross-section drawing. After passing the needle valve seat, the water flows to the inlet seal at the bottom of the water valve stem. Unless the water valve is actuated, the flow of water is blocked at this point.

Actuation of the water valve occurs when air pressure is applied above the water valve diaphragm, in the water valve cap. The cross-section drawing shows how the signal air reaches the water valve cap after passing the holdback diaphragm at the front of the Control Block. When the signal air reaches the water valve cap, it deflects the diaphragm downward. This in turn pushes the stem downward and unseats the inlet seal, allowing water to flow through the valve to the outlet barb.

Releasing the signal air pressure allows the spring to push the stem and diaphragm back up, to close the valve. This movement of the stem and diaphragm creates a momentary low pressure at the outlet barb as the valve closes, so a small quantity of water is drawn back into the valve to prevent dripping from the handpiece.

SERVICE PARTS BREAKDOWN: PAGE 40

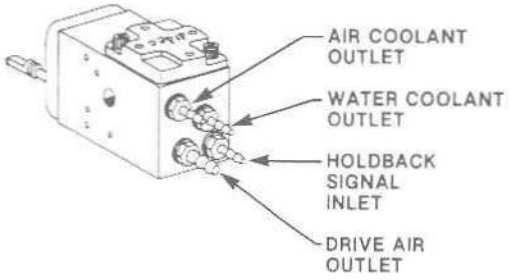


FIGURE 42

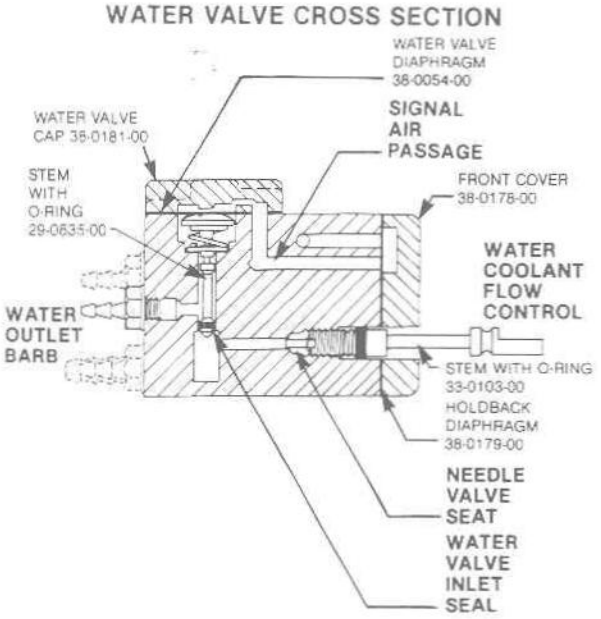


FIGURE 43

Century II Control Blocks Troubleshooting

SYMPTOM	POSSIBLE CAUSE	TEST PROCEDURE	CORRECTIVE ACTION	
			IF TEST IS NORMAL	IF TEST IS ABNORMAL
Audible air leakage from the Control Block area.	Loose connections.	If necessary, use a soap solution to locate the exact point of leakage. Tighten the tie bolt that secures the blocks together and the screws that secure the water valve cap and front cover to the block.	If no leakage is found on the Control Blocks, check the Master Block and barb connections.	If tightening the fasteners fails to stop the leakage, proceed with the next step.
	Defective gasket, o-ring, or diaphragm seal.	For leakage between the blocks, replace the gaskets. For leakage between the block and the front cover, replace the holdback diaphragm. For leakage around the water valve cap, replace the water valve diaphragm.	If this stops the leakage, no further action is required.	If leakage continues, check for flaws in the sealing surfaces. Replace any defective parts.
Water leakage from the Control Block.	Loose connections.	Depending on the point of leakage, tighten the socket-head screws that secure the cap to the top of the block, or the tie bolts that hold the blocks together.	If this stops the leakage, no further action is required.	If tightening the fasteners fails to stop the leakage, proceed with the next step.
	Defective gasket or diaphragm seal.	For leakage between the blocks, replace the gaskets. For leakage around the water valve cap, replace the diaphragm.	If this stops the leakage, no further action is required.	If leakage continues, check for flaws in the sealing surfaces. Replace any defective parts.
Air bubbles in the coolant water.	Low water level in the water tank.	Check the water tank to ensure that it has an adequate supply of water.	If it does, proceed with the next step.	Refill the water tank.
	Loose fasteners.	Tighten the socket-head screws that secure the water valve cap to the Control Block, and tighten the tie bolt that secures the blocks together.	If this corrects the problem, no further action is required.	If there is still air in the water, proceed with the next step.
	Cross-leakage under the water valve diaphragm.	Remove the cap from the top of the Control Block and carefully inspect the diaphragm and the surfaces of the block and cap.	If no defects are observed, install a new diaphragm. Re-install and test the valve.	Replace any defective parts. Re-assemble and test the unit.

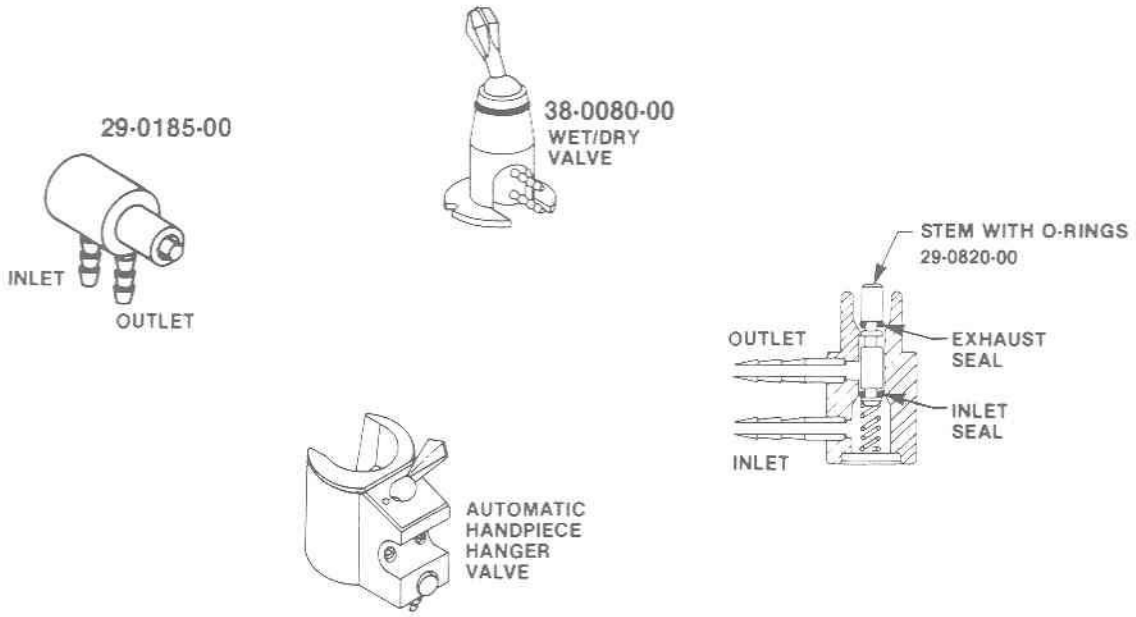
SYMPTOM	POSSIBLE CAUSE	TEST PROCEDURE	CORRECTIVE ACTION	
			IF TEST IS NORMAL	IF TEST IS ABNORMAL
Water drips continuously from the handpiece while the unit is ON, but not in use.	Improperly installed water cup valve.	Look at the top of the Control Block. The A-dec name should be right side up when viewed from the front of the unit.	If the cap is properly installed, proceed with the next step.	If it is wrong, remove the cap and install it correctly. Re-test the unit.
	Water valve stem is stuck or has a defective return spring.	Disconnect the air supply, and release pressure from the water tank, then remove the cap and diaphragm from the Control Block. Press and release the water valve stem to check its freedom of movement.	If the stem seems to move freely, proceed with the next step.	If it sticks, remove the stem and inspect it for debris and defects. Replace any defective parts. Re-assembly and test the valve.
	Defective inlet seal in the water valve.	Remove the stem, and inspect the inlet seal o-ring.	If the o-ring is not defective, proceed with the next step.	Replace any defective parts. Re-assemble and test the valve.
	Defective seat in the Control Block.	There is no test to verify this, except the elimination of other possibilities as explained in the proceeding steps.		Replace the Control Block. Re-assemble and test the unit.
Air or water leaks from a handpiece that is not in use, only when another handpiece is being used.	The holdback diaphragm is defective or improperly installed.	Disconnect the air supply, then remove the front cover from the Control Block for the leaking handpiece. Check for defects in the diaphragm.	If the diaphragm is not defective, proceed with the next step.	If the diaphragm is defective, install a new one. Re-assemble and test the unit.
	Defect in the front surface of the block.	Visually inspect the front surface of the block in the area of the air passages.	If no defects are visible, carefully re-assemble the Control Block and test the unit.	If the surface is damaged, install a new Control Block. Re-assemble and test the unit.
Coolant sometimes sprays momentarily from the handpieces as the selector valve is turned.	The Foot Control Valve fails to exhaust when it is released.	Refer to the instructions for the Foot Control Valve for the test procedure.		Take corrective action as indicated in the Foot Control Valve instructions.
Restricted flow of air or water.	Debris blocking internal passages.	Check first for pinched tubing or other restrictions outside the Century II Control System. It you isolate the problem to the control system, remove the barbs and check for debris there, before disassembling the Master Block or Control Blocks.	If no debris is found, re-assemble and test the unit.	Clean all debris from the barbs and passages. Make sure no tubes are crimped or pinched.
No air or water coolant from either of the handpieces.	Defective Signal Relay on the Foot Control.	Refer to the Signal Relay instructions and conduct the tests for "No signal from the Signal Relay Valve."	If the Signal Relay is okay, look for a pinched or plugged tube between the Signal Relay and the handpiece control system.	Take corrective action as indicated in the Signal Relay instructions.
No Air Coolant from either handpieces (water coolant works properly).	The Air Coolant Flow Control is closed.	Turn the Air Coolant Flow Control counter-clockwise while running a handpiece.	If the air coolant starts flowing, adjust for the desired spray.	If this does not start the air coolant flowing, proceed with the next step.
	Obstructed air passage in the Control Block next to the Master Block.	Select one of the handpieces, then step on the Chip Blower button. If air comes from the handpiece, the Control Blocks are okay. If no air comes out, there is an obstruction at the joint between the Master Block and the first Control Block.	If the test indicates the Control Blocks are okay, refer to the Century II Master Block instructions for further tests.	If the test indicates an obstruction at the joint between the Master Block and the Control Blocks, disconnect the air supply and remove the tie bolt. Use a wire to probe the passages and dislodge any debris. Re-assemble and test the unit.

SYMPTOM	POSSIBLE CAUSE	TEST PROCEDURE	CORRECTIVE ACTION	
			IF TEST IS NORMAL	IF TEST IS ABNORMAL
No air coolant from **one** handpiece.	Clogged tube in the handpiece.	Switch the handpieces around and test each one, to determine whether the problem is in the handpiece or the Control Block.	If the problem is in the handpiece, clean or replace the air coolant tube.	If the problem is in the Control Block, proceed with the next step.
	Clogged passage in the Control Block.	Disconnect the air supply, then remove the front cover and diaphragm from the Control Block. Remove the air coolant outlet barb from the back of the Control Block. Run a wire through the passage to dislodge any obstructions.	If no obstructions are found, check the handpiece tube and connector.	If there is debris in the Control Block passages, clean it out. Check the filter, then re-assemble and test the unit.
No water coolant from either of the handpieces (air coolant works properly).	Either the water supply or the signal air is not getting to the Control Blocks.	Refer to the instructions for the Century II Master Block for test to determine if the water supply and signal air are getting through the Master Block.	If tests confirm that water and signal air are getting to the Control Blocks, proceed with the next step.	Take corrective action as indicated in the Master Block instructions.
	Clogged passage in the Control Block nearest to the Master Block.	If the water and signal air are getting to the Control Blocks, as confirmed by tests given in the Century II Master Block instructions, remove and disassemble the Control Block nearest to the Master Block.		Clean all internal passages. Inspect all parts, and replace any that are defective. Re-assemble and test the unit.
No water coolant from **one** handpiece.	Closed needle valve.	Turn the Water Coolant Flow Control counter-clockwise, while running the handpiece.	If water coolant begins to flow, adjust the valve for the desired flow rate.	If there is no flow when the knob is turned fully counter-clockwise, proceed with the next step.
	Improperly installed water valve cap.	Look at the top of the Control Block. The A-dec name should be right side up when viewed from the front of the unit.	If the cap is properly installed, proceed with the next step.	If the cap is not properly installed remove it and install it correctly. Re-test the unit.
	Leaking water valve diaphragm.	Remove the water valve cap and inspect the diaphragm for leaks.	If the diaphragm is not defective check for clogged passages or barbs in the Control Block.	If the diaphragm is defective, install a new one. Re-assemble and test the valve.
One handpiece does not operate.	The handpiece hanger is set in the LOCKED OUT position.	Check the toggle on the handpiece hanger. It should be flipped **toward** the red dot.	If it is already set properly, proceed with the next step.	If it was set in the wrong position, flip it the other way and re-test the unit.

THREE-WAY MICRO-VALVE

A-dec's three-way (exhausting) micro-valve is used in the automatic handpiece holders, and as a wet/dry (optional) toggle on the foot control.

While it is normally considered a consumable item, the micro-valve can be serviced by removing it from its actuator and extracting the stem and spring.



SERVICE PARTS BREAKDOWN: PAGE 41

FIGURE 44

Three-Way Micro-Valve Troubleshooting

SYMPTOM	POSSIBLE CAUSE	TEST PROCEDURE	CORRECTIVE ACTION	
			IF TEST IS NORMAL	IF TEST IS ABNORMAL
Audible leakage when the valve is OFF.	Improper positioning of the Micro-Valve in its mount.	Loosen the set screw in the mount, and move the Micro-Valve out slightly while listening for continued leakage.	If the leaking stops, tighten the set screw to lock the valve in position.	If the leaking continues, proceed with the next step.
	Inlet seal does not fully close.	Turn the Micro-Valve ON, and listen for continued leakage.	If the leaking continues, look for a loose connection on the inlet barb.	If the leaking stops, inspect the inlet seal area. Replace any defective parts. Re-assemble and test the valve.
Leakage from the valve when it is turned ON.	Improper positioning of the Micro-Valve in its mount.	Loosen the set screw and push the Micro-Valve further into its mount, while listening for continued leakage.	If the leaking stops, tighten the set screw to lock the valve in place.	If the leaking continues proceed with the next step.
	Exhaust seal does not fully close.	With a hemostat, clamp off the tube connected to the inlet barb, then disassemble the valve. Inspect all parts in the exhaust seal area for defects or debris.	If no defects are found, re-assemble and test the valve.	Replace any defective parts. Re-assemble and test the valve.

SYMPTOM	POSSIBLE CAUSE	TEST PROCEDURE	CORRECTIVE ACTION	
			IF TEST IS NORMAL	IF TEST IS ABNORMAL
Valve does not exhaust when it is turned OFF.	Improper positioning of the Micro-Valve in its mount.	Loosen the set screw in the mount, and move the Micro-Valve out slightly while listening for a short burst of air exhausting from the valve.	If the valve exhausts, tighten the set screw to lock the valve in position.	If the valve still does not exhaust, proceed with the next step.
	The exhaust seal O-ring is installed in the wrong groove on the stem. (This applies only to stems manufactured after mid-1978).	With a hemostat, clamp off the tube connected to the inlet barb, then disassemble the valve. Of the two closely-spaced grooves in the exhaust end of the stem, the exhaust seal O-ring belongs in the one closer to the end. The other groove should be empty. (Stems manufactured before mid-1978 do not have this groove.)	If the O-ring is correctly installed, look for debris in the exhaust seal area. Reassemble and test the valve.	If the O-ring is in the wrong groove, move it to the correct one. Re-assemble and test the unit.
No air flows through the valve when it is turned ON.	Improper positioning of the Micro-Valve in its mount.	Loosen the set screw, and push the Micro-Valve further into the mount. Tighten the set screw and test the valve.	If it works properly, no further action is required.	If the valve still does not work, proceed with the next step.
	No air pressure at the valve inlet.	Disconnect the tube from the inlet barb and check for air coming from the tube.	If air is present, proceed with the next step.	If no air comes from the tube, look for a problem upstream from the valve.
	Debris inside the Micro-Valve.	Clamp off the inlet tube with a hemostat, then disassemble the valve and inspect for defects or debris.	If no debris or defects are noted, look for a blockage in the tubing on the downstream side of the valve.	Clean all parts and lubricate the stem and O-rings. Reassemble and test the valve.

FOOT CONTROL VALVE

SERVICE PARTS BREAKDOWN: PAGE 42

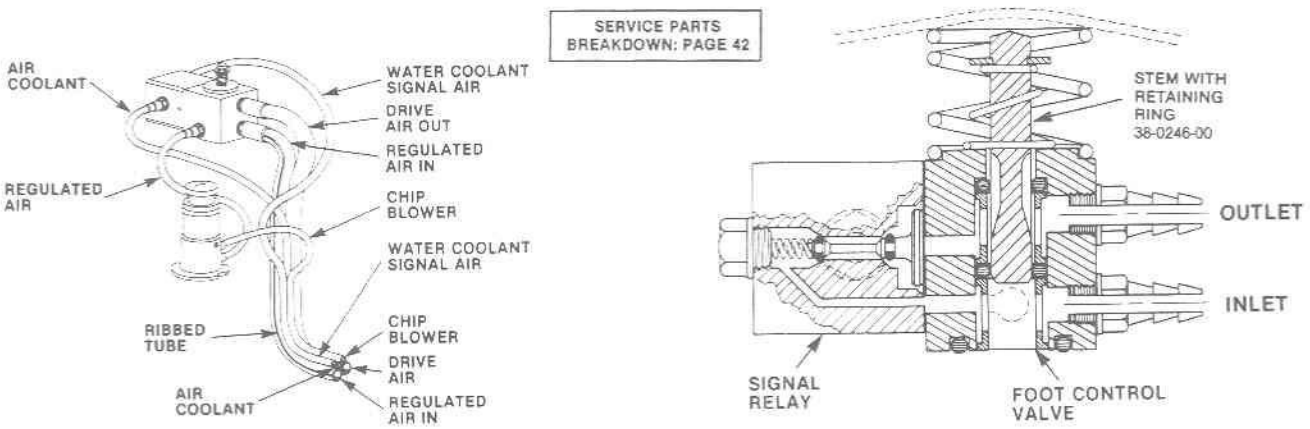


FIGURE 45

DESCRIPTION The A-dec Foot Control Valve is actuated by foot pressure on the cover, which depresses the stem assembly in the valve bore. This moves the fluted surfaces of the stem below the inlet O-ring seal, allowing air to flow to the outlet. When foot pressure is released, the stem returns, sealing the inlet at the O-ring. Any pressure from the outlet side of the valve is then exhausted as the fluted surfaces move above the outlet O-ring seal.

The Signal Relay Valve is covered in a separate section, found on page 30.

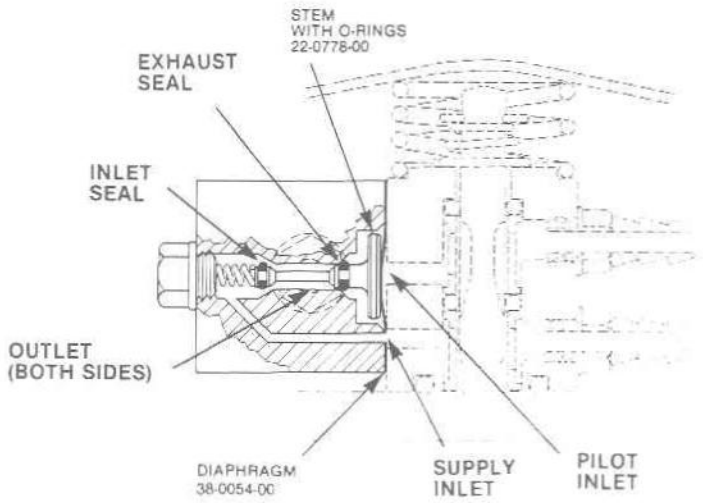
WARNING

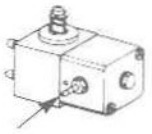
Before removing the Foot Control cover, turn the air supply OFF and bleed all pressure from the system. If this is not done, the stem assembly may be ejected from the Foot Control valve. Never turn the air supply to the Foot Control ON when the cover is off the Foot Control, unless appropriate steps have been taken to ensure that the stem assembly cannot be ejected.

Foot Control Valve Troubleshooting

SYMPTOM	POSSIBLE CAUSE	TEST PROCEDURE	CORRECTIVE ACTION	
			IF TEST IS NORMAL	IF TEST IS ABNORMAL
Audible leakage while the Foot Control is not being used.	Loose mounting screws.	Turn the Foot Control face down and tighten the two phillips-head screws at the center of the baseplate.	If the leakage stops, no further action is required.	If the leakage does not stop, proceed with the next step.
	Loose connection.	Note "WARNING" in the description heading. Remove the Foot Control cover and use a soap solution, if necessary, to located the source of the leakage. For leakage from the Signal Relay refer to the instructions covering the Signal Relay.	If the air is leaking around the barb connection, tighten the barb and re-test the valve.	If the air is leaking from the exhaust vent or around the bottom of the valve body, proceed with the next step.
	Defective O-rings or sealing surface.	Turn the unit OFF and bleed the air pressure, then disassemble the Foot Control. Inspect the O-rings and sealing surfaces for defects and debris.	If no defects are noted, carefully clean and lubricate the parts. Re-assemble and test the valve.	Replace any defective parts. Carefully clean and lubricate all parts. Re-assemble and test the valve.
Inadequate air flow from the Foot Control.	Inadequate air flow to the Foot Control.	Refer to the instructions for Regulators, and conduct the tests for "System pressure drops when the system is in use, then builds back up when it is not being used."	If these tests indicate that there is adequate air in the system, proceed with the next step.	If any of the tests indicates a problem in the air supply to the Foot Control, take the corrective action recommended.
	Pinched tubing going to or from the Foot Control.	Inspect the Foot Control tubing for crimps or restrictions.	If no problem is found, proceed with the next step.	If the tubing is crimped, install a new one, assemble and test the unit.
	Obstruction at the inlet or outlet.	Note "WARNING" in the description heading. With the cover removed, depress the piston and check for adequate air flow.	If no defects are noted, carefully clean and lubricate the parts. Re-assemble and test the valve.	Replace any defective parts. Carefully clean and lubricate all parts. Re-assemble and test the valve.
Foot Control is sluggish.	Sticking stem.	Note "WARNING" in the description heading. Remove the valve body from the base. Remove and inspect the O-rings and spacers for debris or defective parts.	If it works easily and smoothly, check for a weak or improperly installed spring.	If there is any sticking or binding, remove the stem, spacers, and O-rings. Replace any defective parts. Carefully clean and lubricate all parts. Re-assemble and test the valve.

SIGNAL RELAY VALVE





SERVICE PARTS
BREAKDOWN: PAGE 42

FIGURE 46

DESCRIPTION The signal relay valve shown here is a pilot operated three-way valve that mounts on the foot control valve body to provide handpiece air coolant and the handpiece water coolant signal. The valve is actuated by air pressure from the foot control valve outlet. This deflects the diaphragm and moves the stem, to close the exhaust seal and open the inlet seal. A flow of air, at regulated supply pressure, passes through the signal relay valve to the outlet. When the foot control is released, the diaphragm and stem return to their original positions, closing the inlet seal and exhausting any pressure at the outlet.

WARNING

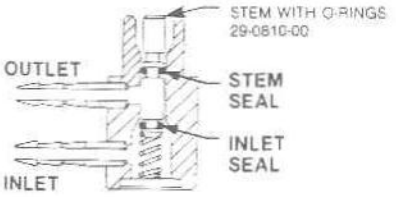
Before removing the cover from the A-dec Foot Control II (identified by a black rather than gray retaining ring), turn the air supply OFF and bleed all pressure from the system. If this is not done, the stem assembly may be ejected from the Foot Control II valve. Never turn the air supply to the Foot Control ON when the cover is off the Foot Control unless appropriate steps have been taken to ensure that the stem assembly cannot be ejected.

Signal Relay Valve Troubleshooting

SYMPTOM	POSSIBLE CAUSE	TEST PROCEDURE	CORRECTIVE ACTION	
			IF TEST IS NORMAL	IF TEST IS ABNORMAL
No signal from the Signal Relay Valve.	Signal Relay installed upside down.	Visually check the Signal Relay Valve. It must be positioned as shown in the illustration in order for the inlet passage to line up with the passage on the Foot Control Valve body.	If the Signal Relay is properly installed, proceed with the next step.	If the Signal Relay is installed wrong, remove it and install it properly. Re-test the valve.
	Defective or improperly installed diaphragm.	Remove the Signal Relay from the Foot Control and check for defects, debris, or improper installation. The holdes in the diaphragm must be aligned with the passages in the valve bodies.	If no defects are noted, clean all parts. Re-assemble and test the valve.	Replace any defective parts. Re-assemble the valve, making sure all parts are properly installed.
Air signal from the Signal Relay does not shut off.	The stem return spring is missing.	Remove the hex plug from the end of the Signal Relay Valve and verify that the spring is in place.	If the spring is there, proceed with the next step.	If the spring is missing or defective, replace it and re-test the valve.
	The valve stem is stuck in the open position.	Disassemble the Signal Relay Valve and inspect all parts for defects, debris, or improper installation.	If no defects are found, carefully clean all parts. Lubricate the stem and O-rings, then re-assemble and test the valve.	Replace any defective parts. Lubricate the stem and O-rings then re-assemble and test the valve.
Audible air leakage while the unit is not in use.	Improper seating of the diaphragm.	Note "WARNING" in the description heading. Use a soap solution, if necessary, to locate the source of the leakage.	If the leakage is from the exhaust holes on the sides of the Signal Relay, proceed with the next step.	If the leakage is at the diaphragm line, tighten the Signal Relay mounting screws. If leaking persists, replace the diaphragm.
	Signal Relay inlet seal does not fully close.	If the leakage is from the exhaust holes, shut the unit OFF, then remove the Signal Relay from the Foot Control. Inspect the stem, O-rings, and seats for debris or defects.	If no defects are noted, carefully clean and lubricate the parts. Re-assemble and test the valve.	Replace any defective parts. Clean and lubricate the parts, then re-assemble and test the valve.
Audible air leakage while the unit is in use.	Improper seating of the diaphragm.	Depress the Foot Control until the relay is actuated. While listening to the leak, depress the Foot Control all the way.	If there is no change in the sound of the leak, proceed with the next step.	If the leaking increases with pressure on the Foot Control, tighten the Signal Relay mounting screws. If leakage persists, replace the diaphragm.
	Signal Relay exhaust seal does not fully close.	Note "WARNING" in the description heading. While the Foot Control is depressed, check for leakage out the exhaust holes in the Signal Relay body.	If there is no leakage from the holes, check the outlet barb and tubing. Tighten the barb or the sleeve, as necessary to stop the leak.	If air comes from the exhaust holes, inspect the exhaust seal area for debris or defects. Replace any defective parts. Clean and lubricate all parts, then re-assemble and test the valve.

CHIP BLOWER VALVE (TWO-WAY MICRO-VALVE)

38-0078-00
CHIP BLOWER VALVE



38-0062-00

SERVICE PARTS BREAKDOWN: PAGE 42

38-0062-00

FIGURE 47

DESCRIPTION The chip blower valve assembly (38-0078-00) on the foot control consists of a two-way (non-exhausting) micro-valve mounted in a button operated actuator.

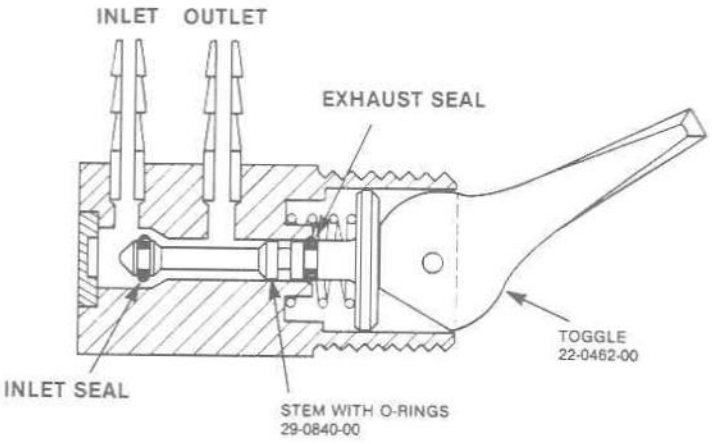
This valve is normally considered to be a consumable item, however it can be serviced by removing it from its actuator and extracting the stem and spring.

Chip Blower Valve (Two-Way Micro-Valve) Troubleshooting

SYMPTOM	POSSIBLE CAUSE	TEST PROCEDURE	CORRECTIVE ACTION	
			IF TEST IS NORMAL	IF TEST IS ABNORMAL
Air leaks past the valve when it is turned OFF.	Improper positioning of the Micro-Valve in its mount.	Loosen the set screw in the mount, and move the Micro-Valve out slightly, while listening for continued leakage.	If the leaking stops, tighten the set screw and lock the valve in position.	If the leaking continues, proceed with the next step.
	Inlet seal does not fully close.	Turn the Micro-Valve ON, and listen for continued leakage.	If the leaking continues, look for a loose connection on the inlet barb.	If the leaking stops, inspect the inlet seal area. Replace any defective parts. Re-assemble and test the valve.
Air leakage around the stem when the valve is ON, and/or downstream pressure exhausts when the valve is turned OFF.	Leakage past the stem seal.	Use a hemostat to clamp off the tube connected to the inlet barb, then disassemble the valve. Inspect all internal parts and surfaces for debris or defects.	If no defects are observed, proceed with the next step.	Replace any defective parts. Re-assemble and test the valve.
	The stem seal O-ring is installed in the wrong groove.	Disassemble the Micro-Valve and inspect the stem. Of the two closely-spaced grooves in the outlet end of the stem, the O-ring belongs in the one further from the end. The groove closer to the end should be empty.	If the O-ring is correctly installed, look for debris in the valve. Clean and lubricate the parts. Re-assemble and test the valve.	If the O-ring is in the wrong groove, move it to the correct one. Re-assemble and test the valve.
No air flows through the valve when it is turned ON.	Improper positioning of the Micro-Valve in its mount.	Loosen the set screw, and push the Micro-Valve further into the mount. Tighten the set screw and test the valve.	If the valve works properly, no further action is required.	If the valve still does not work, proceed with the next step.
	No air pressure at the valve inlet.	Disconnect the tube from the inlet barb and check for air coming from the tube.	If air is present, proceed with the next step.	If no air comes from the tube, look for a problem upstream from the valve.
	Debris inside the Micro-Valve.	Clamp off the inlet tube with a hemostat, then disassemble the valve and inspect for debris or defects.	If no debris or defects are noted, look for a blockage in the tubing on the downstream side of the valve.	Clean all parts and lubricate the stem and O-rings, then re-assemble and test the valve.

THREE-WAY TOGGLE VALVE

33-0048-00



SERVICE PARTS BREAKDOWN: PAGE 43

FIGURE 48

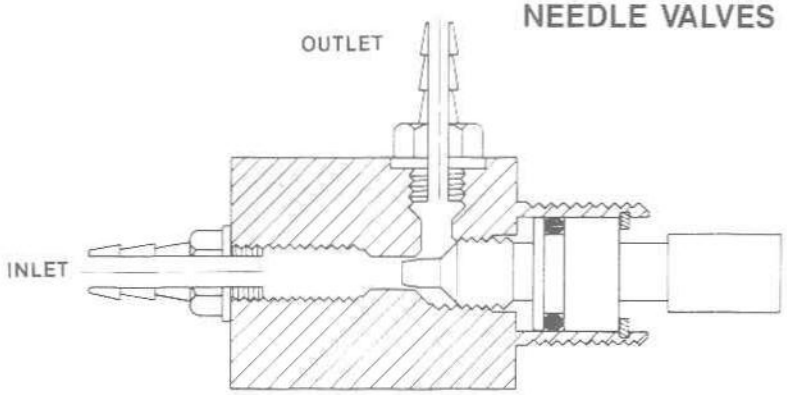
DESCRIPTION The illustrations show the three-way (exhausting) toggle valve used in the Porta-Cart to pressurize and de-pressurize the water tank.

These valves are serviced by pushing the toggle pin out of the neck of th valve body and removing the toggle, stem, and spring. When assembling the valve, note that the toggle can be installed in any of four different positions, so it is necessary to ensure that it is installed to match the lettering on the faceplate of the unit.

Three-Way Toggle Valve Troubleshooting

SYMPTOM	POSSIBLE CAUSE	TEST PROCEDURE	CORRECTIVE ACTION	
			IF TEST IS NORMAL	IF TEST IS ABNORMAL
Audible leakage when the valve is OFF.	Inlet seal does not fully close.	Turn the valve ON, and listen for continued leakage.	If the leaking continues, look for a loose connection at the inlet fitting.	If the leaking stops, inspect the inlet seal area. Replace any defective parts. Re-assemble and test the valve.
Leakage from the valve when it is turned ON.	Loose connection at the outlet fitting.	Use a soap solution, if necessary, to determine the point of leakage.	If the air is escaping around the toggle, proceed with the next step.	If the leak is at the outlet barb, tighten or replace the barb, sleeve, or washer, as necessary.
	Exhaust seal does not fully close.	Clamp off the tube connected to the inlet with a hemostat, then disassemble the valve. Inspect all parts in the exhaust seal area for defects or debris.	If no defects are found, clean and lubricate all parts, then re-assemble and test the valve.	Replace any defective parts. Re-assemble and test the valve.
Valve does not exhaust when it is turned OFF.	The exhaust seal O-ring is installed in the wrong groove on the stem.	With a hemostat, clamp off the tube connected to the inlet, then disassemble the valve. Of the two closely-spaced grooves near the head of the stem, the exhaust seal O-ring belongs in the one closer to the head. The other groove should be empty.	If the O-ring is correctly installed, look for debris in the exhaust seal area. Clean and lubricate the parts. Re-assemble and test the valve.	If the O-ring is in the wrong groove, move it to the correct one. Re-assemble and test the valve.
Loose toggle.	The toggle pin is part way out.	Visually inspect the pin and the valve mounting nut. The outer nut should cover the toggle pin holes to keep the pin in place.	If the toggle pin is still in place, the hole in the toggle is worn, so a new toggle should be installed.	If the pin is loose, work it into place and install the mounting nut so it covers the toggle pin holes.

NEEDLE VALVES



13-0361-00

SERVICE PARTS BREAKDOWN: PAGE 44

FIGURE 49

DESCRIPTION The illustrations show the needle valves that is used to control the flow of air to the Air Vacuum System and the Air Saliva Ejector.

Needle Valve Troubleshooting

SYMPTOM	POSSIBLE CAUSE	TEST PROCEDURE	CORRECTIVE ACTION	
			IF TEST IS NORMAL	IF TEST IS ABNORMAL
No flow through the Needle Valve.	Obstruction in the barb or valve body.	Verify that there is a flow at the valve inlet, then turn the control knob counter-clockwise to open the valve.	If the valve begins to work, adjust it for the desired rate of flow.	If the valve remains blocked, clamp the inlet tube, then disassemble the valve. Carefully clean and lubricate the parts, then re-assemble and test the valve.
Leakage around the stem.	Defective O-ring seal around the stem.	Use a hemostat to clamp off the tube connected to the inlet barb, then disassemble the valve. Inspect all internal parts and surfaces for defects and debris.	If no defects are found, re-assemble and test the valve.	Replace any defective parts. Re-assemble and test the valve.
Flow control cannot be acjusted.	Stripped threads on stem.	Use a hemostat to clamp off the tube connected to the inlet barb, then disassemble the valve. Inspect all internal parts and surfaces for debris or defects.	If no defects are found, re-assemble and test the valve.	Replace any defective parts. Re-assemble and test the valve.

SYRINGE

The Soft-Touch syringe is designed so that it can be easily serviced with the tools and parts contained in the Syringe Repair Kit (A-dec part no. 90-0310-00). In the event of air or water leakage from the syringe, take the following action according to the point of leakage.

1. Leakage around the button or tip can be repaired by installing a new button assembly (refer to Figure 50.
   a. Using a paper clip or similar object, push the retainer pin completely out of the syringe head and remove the faulty button assembly. Note that there is a spring inside the syringe head, underneath the button assembly; be careful that this spring does not fall out while you have the button assembly removed.
   b. Apply a light coating of A-dec lubricant around the outside of the o-rings on the new button assembly, then install the new button making sure that the spring is correctly positioned in the syringe head.
   c. While firmly holding down both buttons reinsert the retainer pin. If you do not hold the buttons down, you risk damaging the o-ring or brass spool.
2. Air leakage around the syringe tip nut is repaired by replacing O-rings.
   a. Loosen the syringe tip nut and remove the tip.
   b. Remove the nut. Note that there is an O-ring (033-006-00) retained inside the nut, and another O-ring (035-020-00) around the insert.

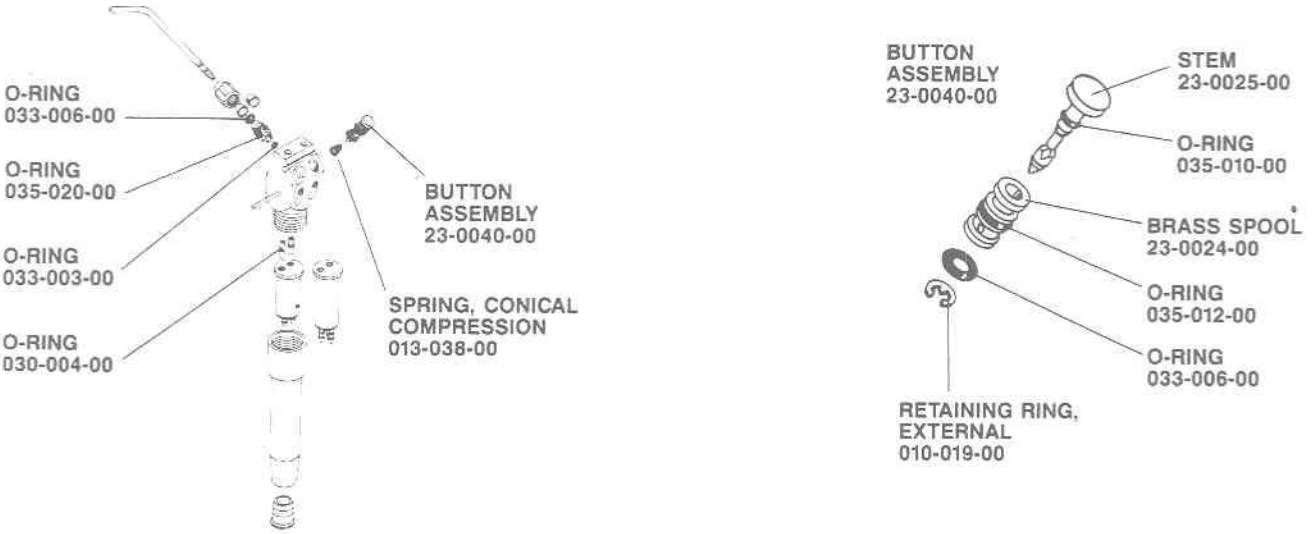


FIGURE 50

c. Use a pointed instrument to remove the O-rings. Apply a light coating of A-dec Silicone Lubricant to the new O-rings then carefully install them. Be sure the sleeve is properly seated in the nut before installing the O-ring (033-006-00).

d. Reinstall the nut, but do not tighten it. Install a syringe tip, then tighten the nut until it is just snug.

3. Leakage between the air and water passages will cause a momentary spray of water from the syringe tip when the air button is pressed. Be sure the tip is pushed **all the way** into its seat. If it is, the problem is a defective O-ring (033-003-00) in the insert.

   a. Remove the tip and nut, as explained in Steps 2a and 2b above.

   b. Use a 5/32-inch hex wrench to remove the insert from the syringe head.

   c. Use a pointed instrument to remove the O-ring (033-003-00) from the insert. Apply a light coating of A-dec Silicone Lubricant to the new O-ring, then install it in the seat.

   d. Reinstall the insert in the syringe head, and tighten it **firmly** with the hex wrench.

   e. Install the syringe nut and tip as explained in Step 2d.

4. Leakage from the syringe handle can be repaired by replacing the O-rings on the connector tubes.

   a. Flip the water pressure toggle OFF and disconnect the air supply and press both syringe buttons to relieve pressure from the system.

   b. Unscrew the syringe handle, and remove the connector tubes from the terminal.

   c. Use a pointed instrument to remove the O-rings (030-004-00). Apply a light coating of A-dec Silicone Lubricant to the new O-rings, then install them on the connector lines.

   d. Reinstall the connector tubes in the terminal, and reinstall the syringe handle.

AIR VACUUM SYSTEM

General

The A-dec **Air Vacuum System** provides assistant's instrumentation for dental operatories that are not equipped with central vacuum. The basic system includes an AVS Oral Evacuator and a Solids Strainer.

A.V.S. Oral Evacuator

BUTTON REPLACEMENT If air leakage develops around the AVS Oral Evacuator Button, install a new button assembly. The AVS Button Kit (A-dec part no. 10-0600-00) contains the new button with O-rings, a new spring, and a tool for removing the old spring (refer to Figure 51).

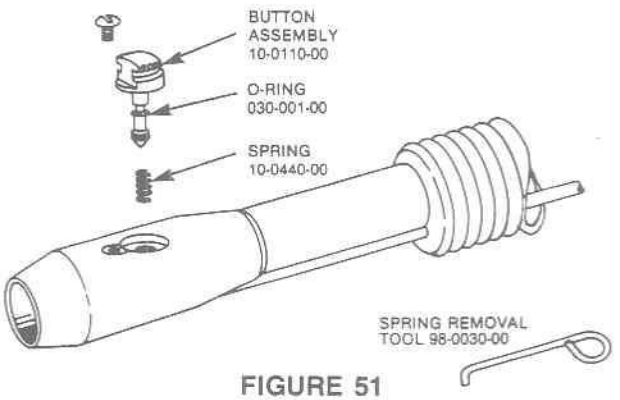


FIGURE 51

Remove the button retainer screw, then pull the button from the AVS Oral Evacuator. Use the tool (98-0030-00) to remove the spring. Install the new spring and button, and secure them with the retainer screw.

A.V.S. AIR TUBE REPLACEMENT The air supply tube for the AVS Oral Evacuator is inside the flexible drain tube (refer to Figure 52). If the tube becomes crimped or develops a leak, install a new one as follows:

1. Turn OFF the air supply to the AVS Oral Evacuator.
2. Separate the flexible drain tube from the AVS Oral Evacuator handpiece and, at the other end, from the tubing adapter.
3. Unscrew the terminal nuts from the AVS Oral Evacuator handpiece and tubing adapter. Remove the air supply tubing. Recover the terminal nuts for use with the new tubing.
4. If the flexible drain tubing is to re-used, trim the ends to remove any damaged or deformed tubing.
5. Slip the terminal nuts onto the new air supply tubing. Push one end of the tubing onto the tubing adapter, the tighten the terminal nut.

NOTE

Be careful not to overtighten the terminal nut. Tightening it too far will cause the tubing to slip out of the nut and come loose from the terminal.

6. Feed the air supply tubing through the flexible drain tubing, then push the drain tubing onto the tubing adapter as far as it will go.
7. Lay the tubing in a straight line, without stretching or compressing the flexible drain tubing. Make a mark on the air supply tube at the point where the drain tubing ends. Cut the air supply tubing one inch short of that mark.
8. Connect the air supply tubing to the AVS Oral Evacuator handpiece, and tighten the terminal nut as explained in Step 5.
9. Turn ON the air supply and check for leaks at the tubing connections. If there are no leaks, push the flexible drain tubing onto the AVS Oral Evacuator handpiece.

AIR SALIVA EJECTOR

If the Air Saliva Ejector stops working, the jet assembly may be clogged. Turn OFF the air supply to the saliva ejector, and remove the cap. Remove the retainer screw (refer to Figure 53), then pull the jet assembly from the Air Saliva Ejector.

While the jet assembly is out, open the Saliva Ejector Flow Control to verify that the air supply is reaching the saliva ejector. If it is **not**, the Air Flow Control is clogged and should be replaced. If air **is** reaching the saliva ejector, then the problem is a clogged jet. Replace the jet assembly.

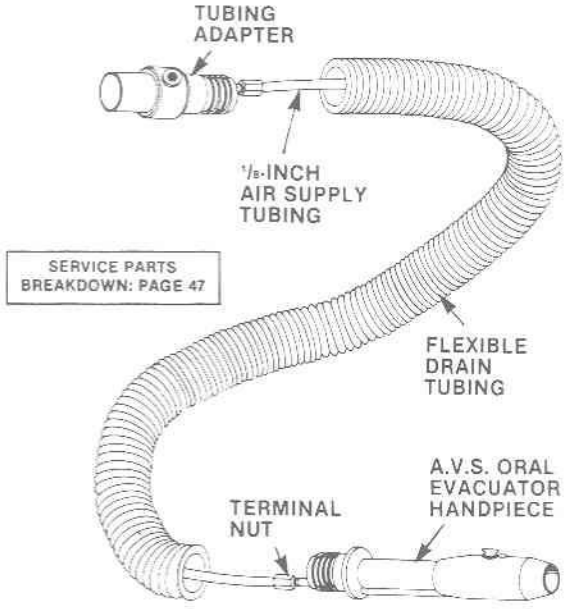


FIGURE 52

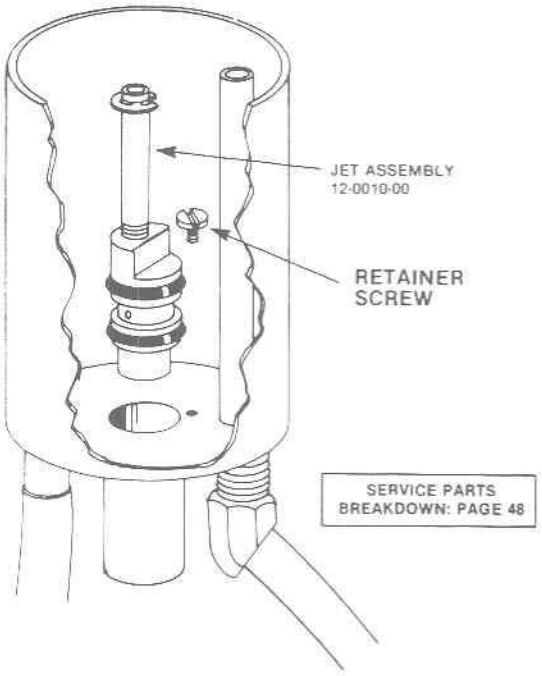
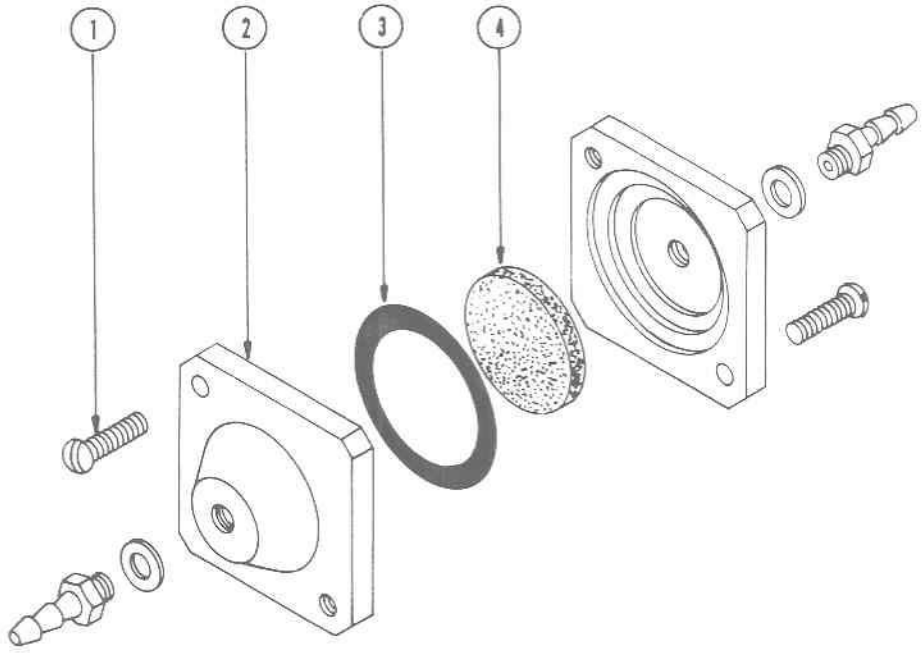


FIGURE 53

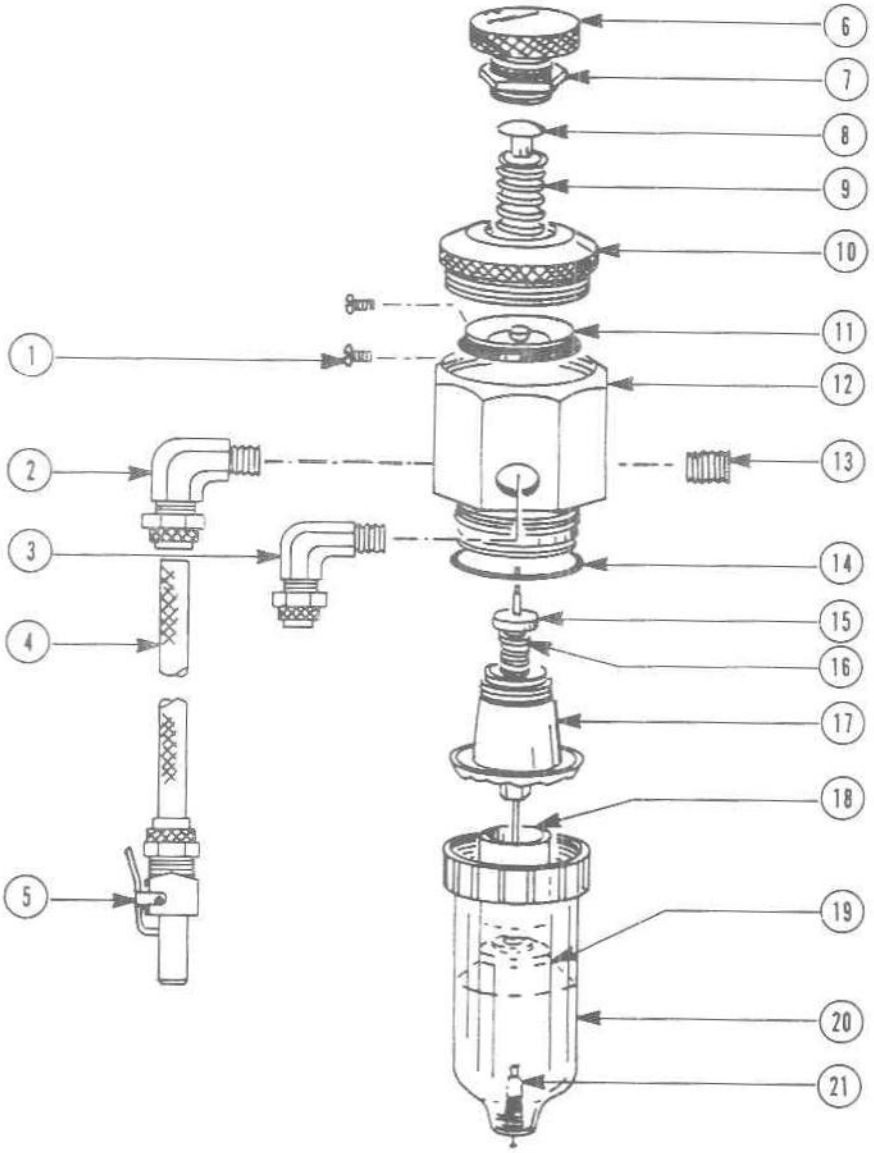
SERVICE PARTS BREAKDOWN

MINI-FILTER 19-0100-00



REF. NO.	DESCRIPTION	PART NO.
1	Screw, Slotted, 4-40 x ¼, Zinc Plate	001-047-00
2	Housing	19-0110-00
3	O-Ring, ARP 568-016	030-016-00
4	Filter Disc	19-0220-00

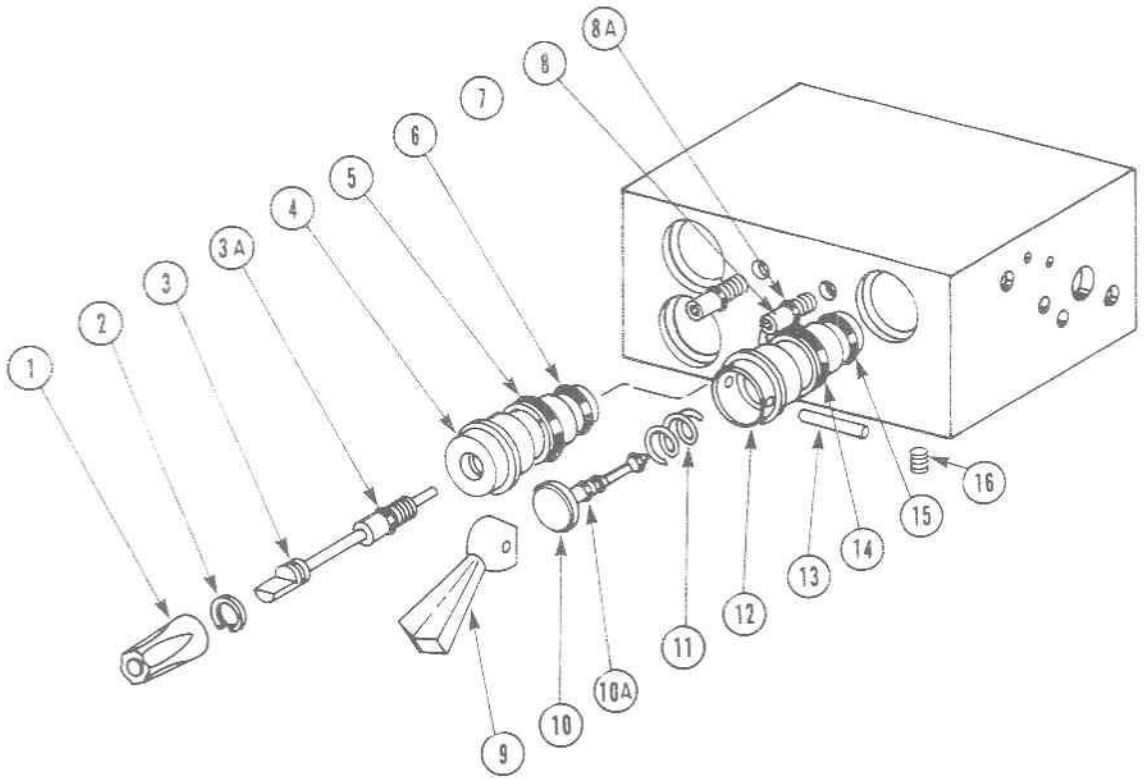
FILTER-REGULATOR, AIR



REF. NO.	DESCRIPTION	PART NO.
1	Screw, Button Head, 6-32 x ¼"	001-012-00
2	Elbow ⅜ Poly x ⅛ MPT	022-025-00
3	Elbow ¼ Poly x ⅛ MPT	022-003-00
4	Tubing, Braided, ⅜ O.D.	024-088-00
5	Quick Disconnect, Male ⅜ O.D.	026-040-00
6	Adjusting Screw	—
7	Locknut	006-006-00
8	Spring Cap	—
9	Spring, Compression	—
10	Cover	—
11*	Diaphragm Assembly	97-0200-00
12	Valve Body	—
13	Plug, ⅛ MPT, Socket Head, Brass	021-020-00

REF. NO.	DESCRIPTION	PART NO.
14	O-ring, ARP 568-023	030-023-00
15*	Poppet	97-0240-00
16	Spring, Compression	—
17	Inlet Seat Assembly	—
18*	Filter Element	97-0280-00
19	Filter Element Retainer	—
20	Bowl	97-0290-00
21*	Valve Core, Short	026-033-00
—	Air Filter Regulator (includes Items 6-21)	026-041-00
—	Service Kit, Air Filter-Regulator (includes all parts designated by and asterisk*)	90-0030-00

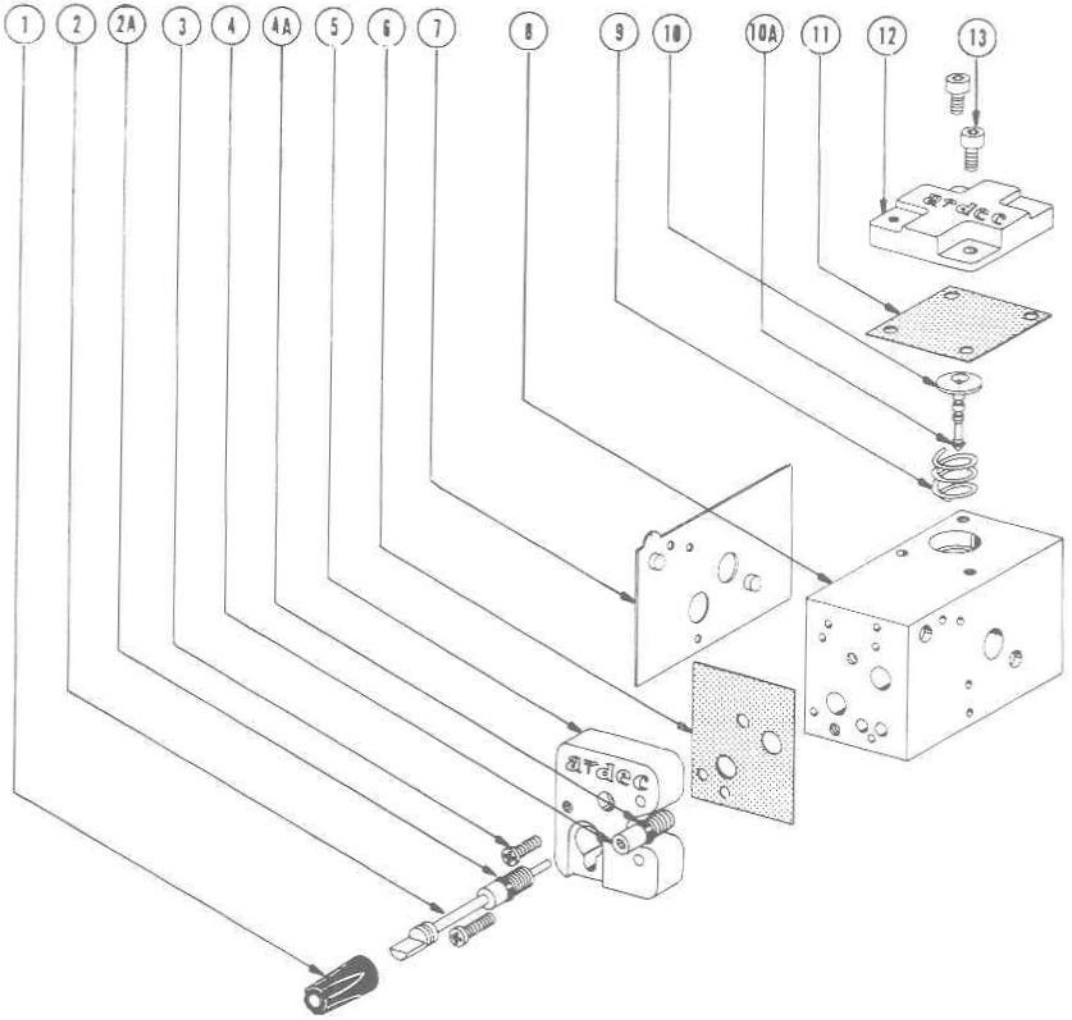
CENTURY II MASTER BLOCK ASSEMBLY



REF. NO.	DESCRIPTION	PART NO.
1	Knob, Century II (Yellow)	027-018-00
2*	Retaining Ring, Internal	010-017-00
3	Stem, Needle Valve (with O-Ring)	33-0103-00
3A*	O-Ring, ARP 568-004	030-004-00
4	Valve Body, Century II Needle Valve	33-0102-00
5*	O-Ring, ARP 568-010	030-010-00
6*	O-Ring, ARP 568-008	030-008-00
—	Century II Needle Valve (Includes Items 1-6)	33-0101-00
7	Master Block, Century II	38-0185-00
8	Adjusting Screw (with O-Ring)	29-0100-00
8A*	O-Ring, ARP 568-004	030-004-00
9	Toggle, Plastic	22-0462-00

REF. NO.	DESCRIPTION	PART NO.
10*	Stem, (with O-Rings)	29-0840-00
10A	O-Ring, ARP 568-001	030-001-00
11	Spring, Compression	22-0040-00
12	Valve Body, Century II Toggle Valve	33-0099-00
13	Toggle Pin, Century II	011-039-00
14*	O-Ring, ARP 568-010	030-010-00
15*	O-Ring, ARP 568-008	030-008-00
—	Century II Toggle Valve (Includes Items 9-15)	33-0100-00
16	Set Screw, Socket, 6-32 x 1/8 Cup Point, Stainless	007-001-00
—	Century II Service Kit (Includes all parts designated by an asterisk*, plus parts to service the Control Blocks)	90-0308-00

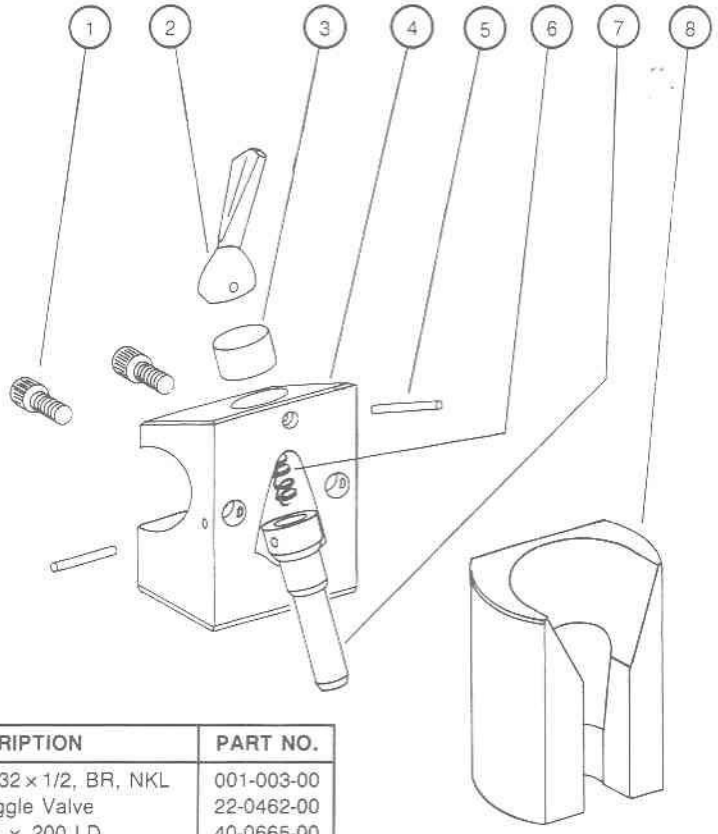
CENTURY II CONTROL BLOCK 38-0175-00



REF. NO.	DESCRIPTION	PART NO.
1	Knob, Century II (blue)	027-017-00
2	Stem, Needle Valve (with O-Ring)	33-0103-00
2A*	O-Ring, ARP 568-004	030-004-00
3	Screw, Binder Head Philips, 4-40 x ¼, Zinc Plate	002-097-00
4	Adjusting Screw (with O-Ring)	29-0100-00
4A*	O-Ring, ARP 568-004	030-004-00
5	Cover, Century II Front	38-0178-00
6*	Diaphragm, Century II Holdback	38-0179-00
7*	Gasket, Century II Control Block	38-0186-00

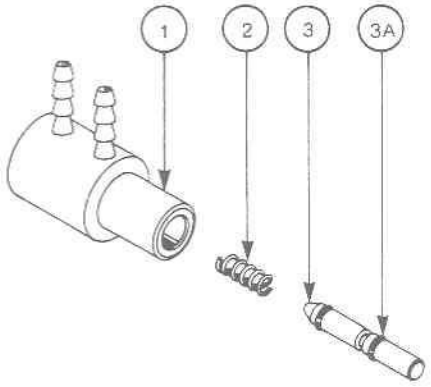
REF. NO.	DESCRIPTION	PART NO.
8	Control Block	38-0176-00
9	Spring	013-025-00
10*	Stem, (with O-Ring)	29-0835-00
10A*	O-Ring, ARP 568-001	030-001-00
11*	Diaphragm	38-0054-00
12	Cap, Century II Water Valve	38-0181-00
13	Capscrew, Socket Head, 4-40 x ¼, Zinc Plate	002-092-00
—	Century II Service Kit (Includes all parts designated by an asterisk*, plus parts to service the Master Block components)	90-0308-00

CENTURY SERIES AUTOMATIC HOLDER
99-0528-00



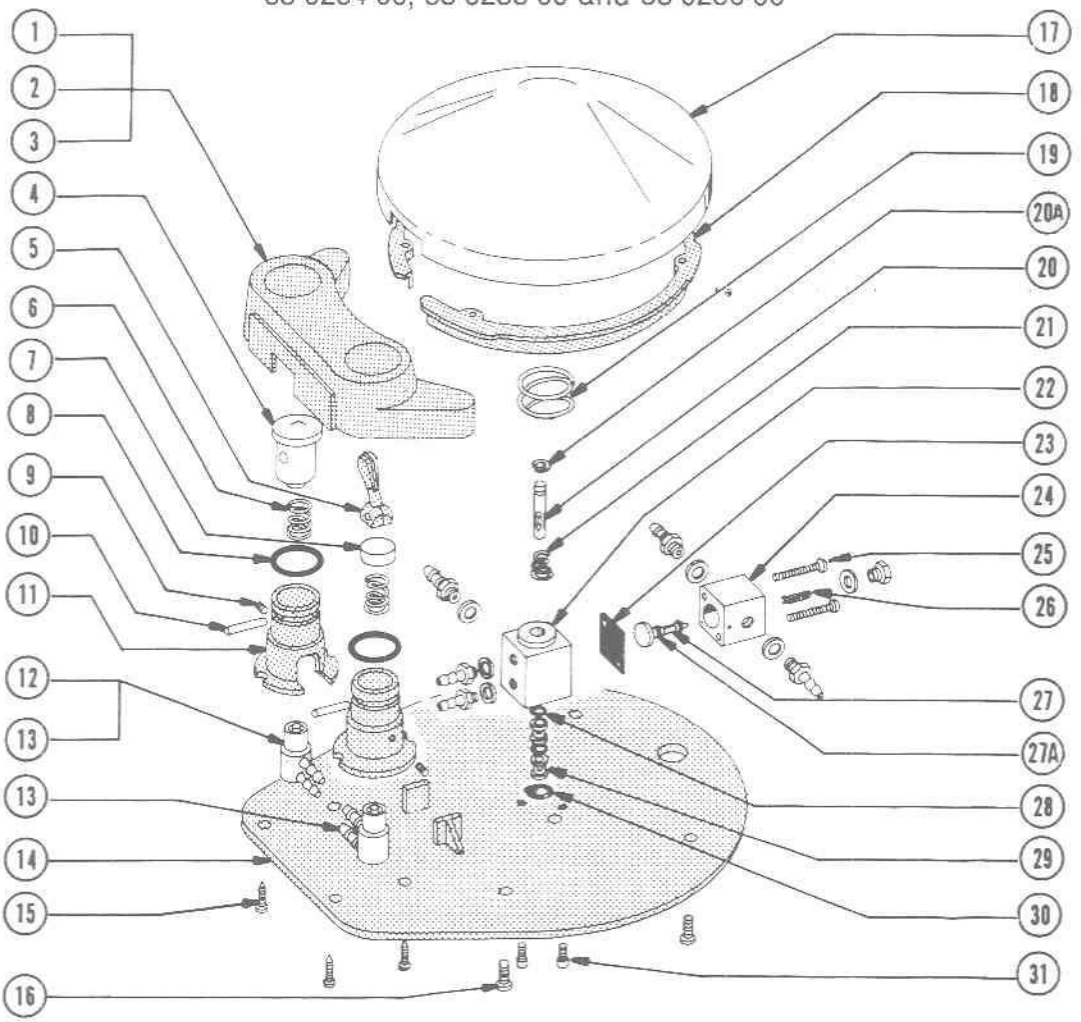
REF. NO.	DESCRIPTION	PART NO.
1	Screw, Knurl, 10-32 x 1/2, BR, NKL	001-003-00
2	Lever, Plastic Toggle Valve	22-0462-00
3	Spacer, .367 O.D. x .200 I.D.	40-0665-00
4	Clamp, Auto Holder	40-0710-00
5	Pin, Dowel, 1/16 O.D. x .520	011-041-00
6	Spring, Helical Comp, .750 O.D. x .18	40-0182-00
7	Actuator, Auto Holder	40-0667-00
8	Holder, Auto-Block	99-0541-00

THREE-WAY MICRO-VALVE
29-0185-00



REF. NO.	DESCRIPTION	PART NO.	CODE
1	Body, Micro-Valve	29-0190-00	6
2	Spring, Compression	10-0440-00	2
3	Stem (with O-Rings)	29-0820-00	2
3A	O-Ring, ARP 568-001	030-001-00	2

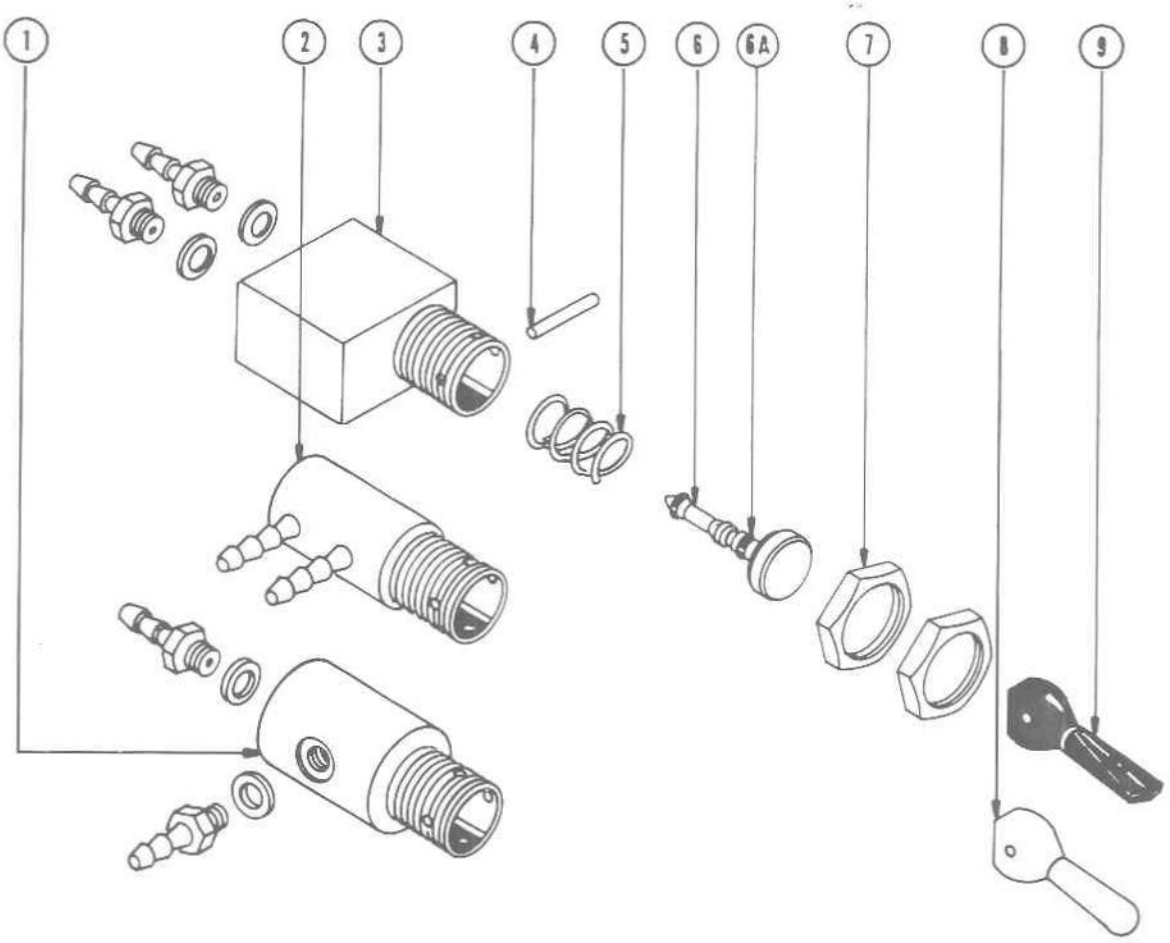
FOOT CONTROL II
38-0250-00, 38-0251-00, 38-0252-00, 38-0253-00, 38-0254-00, 38-0255-00 and 38-0256-00



REF. NO.	DESCRIPTION	PART NO.
1	Plastic Housing, No Holes	38-0042-00
2	Plastic Housing, One Hole	38-0044-00
3	Plastic Housing, Two Holes	38-0046-00
4	Button	38-0070-00
5	Toggle	38-0074-00
6	Spring	22-0040-00
7	Spring Cap	38-0066-00
8	O-Ring, Special	035-005-00
9	Setscrew, Socket, 6-32 x 3/16, Cup Point	007-002-00
10	Dowel Pin 1/8 x 3/8	011-016-00
11	Pedestal	38-0072-00
12	Micro-Valve, 2-Way	38-0062-00
13	Micro-Valve, 3-Way	29-0185-00
—	Chip Blower Valve Assembly (includes items 4, 6, 8, 9, 10, 11 & 12)	38-0078-00
—	Scaler Valve Assembly (includes items 4, 6, 8, 9, 10, 11 & 13)	38-0079-00
—	Wet/Dry Valve Assembly (includes items 5, 6, 7, 8, 9, 10, 11 & 13)	38-0060-00
14	Base (with Bumpers)	38-0055-00
—	Bumpers, Self Adhesive (not shown)	017-007-00
15	Screw, Sheet Metal, Pan Head Phillips, 4 x 1/2, Zinc Plate	003-031-00

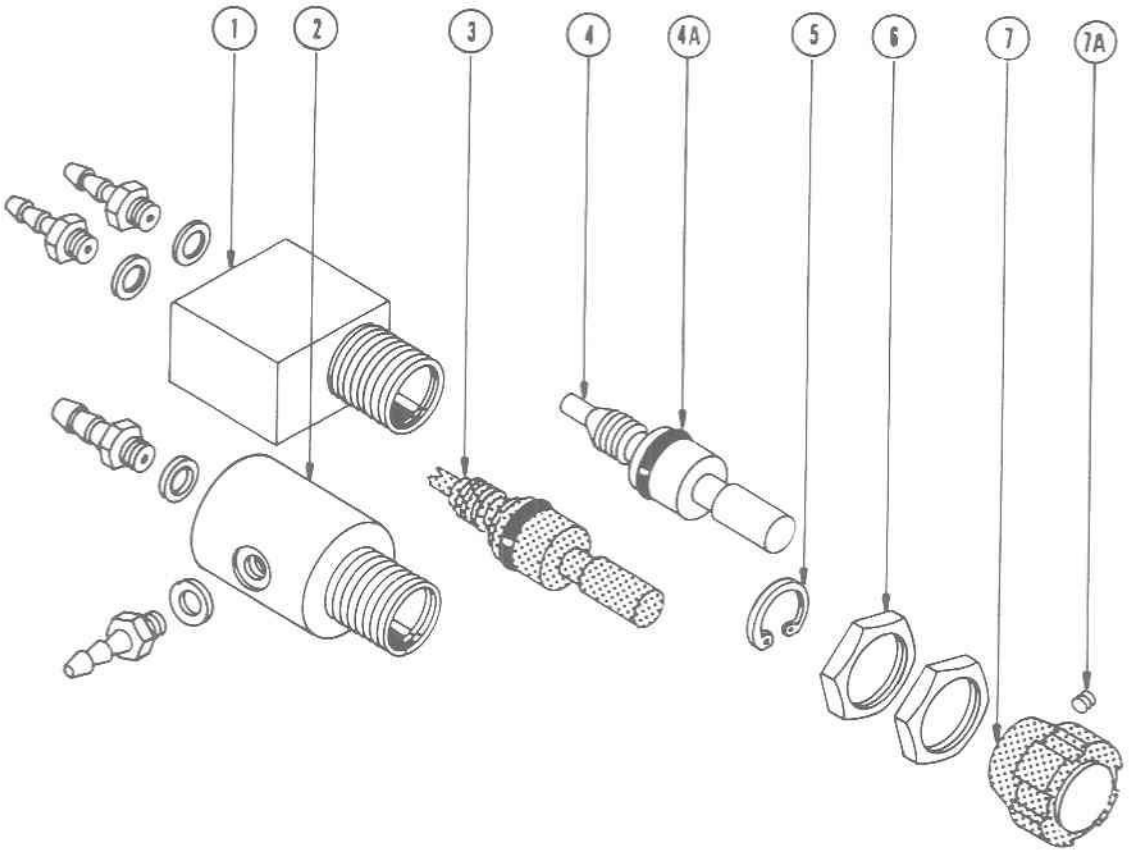
REF. NO.	DESCRIPTION	PART NO.
16	Screw, Sheet Metal, Pan Head Phillips, 6 x 1/2, Zinc Plate	003-022-00
17	Cover	22-0110-00
18	Retainer Ring	38-0237-00
19*	Spring, Compression	013-011-00
20*	Stem (with Retaining Ring)	38-0246-00
20A	Retaining Ring, External	010-002-00
21*	Spring, Conical Compression	013-022-00
22	Valve Body	38-0241-00
23*	Diaphragm	38-0054-00
24	Valve Body, Relay	38-0056-00
25	Screw, Pan Head Phillips, 4-40 x 3/8, Zinc Plate	002-016-00
26*	Spring, Compression	10-0440-00
27*	Stem, Relay (with O-Rings)	22-0778-00
27A	O-Ring, ARP 568-001	030-001-00
28*	O-Ring, ARP 568-008	035-019-00
29	Spacer	38-0213-00
30*	O-Ring, ARP 568-012	030-012-00
31	Capscrew, Socket Head, 4-40 x 1/4, Zinc Plate	002-092-00
—	Service Kit, Foot Control II (includes all parts designated by an asterisk*)	90-0312-00

THREE-WAY TOGGLE VALVE
026-050-00, 33-0048-00, 33-0080-00



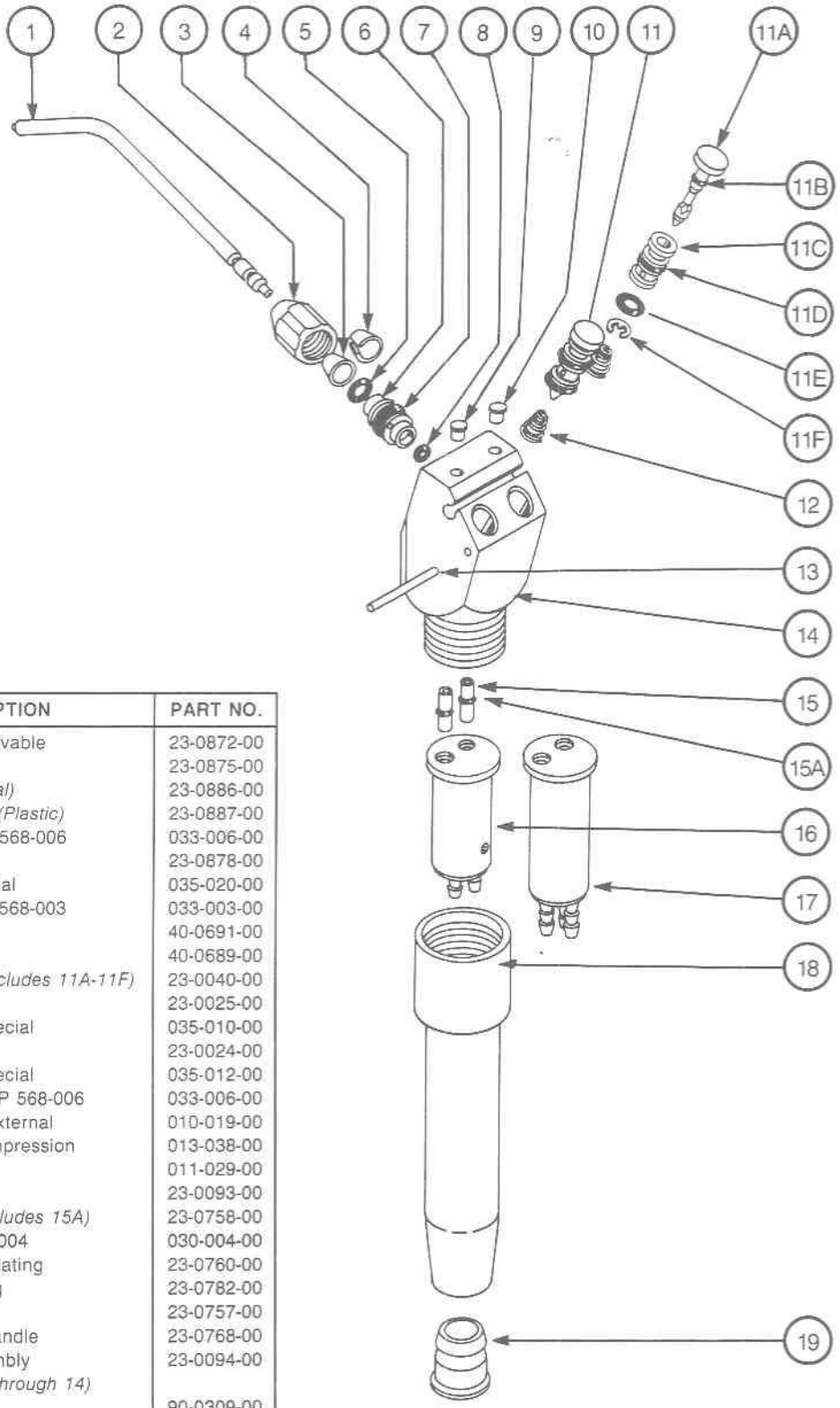
REF. NO.	DESCRIPTION	PART NO.
1	Valve Body (for 026-050-00)	33-0006-00
2	Valve Body (for 33-0048-00)	33-0050-00
3	Valve Body (for 33-0080-00)	33-0078-00
4	Toggle Pin	011-038-00
5	Spring, Compression	22-0040-00
6	Stem (with O-Rings)	29-0840-00
6A	O-Ring, ARP 568-001	030-001-00
7	Nut, 15/32 x 3/32, 9/16 Hex, Chrome Plate	006-009-00
8	Toggle, Metal	22-0470-00
9	Toggle, Plastic	22-0462-00

NEEDLE VALVES
13-0361-00, 33-0084-00 and 33-0085-00



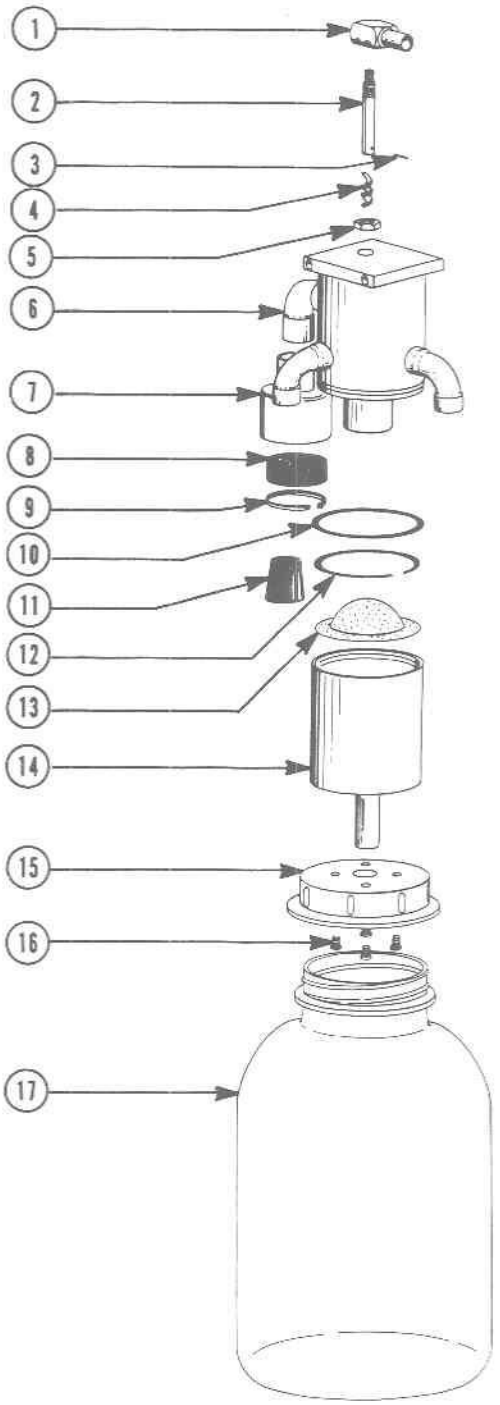
REF. NO.	DESCRIPTION	PART NO.
1	Valve Body	33-0086-00
2	Valve Body	13-0353-00
3	Stem, Needle Valve, Black (with O-Ring)	38-0102-00
4	Stem, Needle Valve, White (with O-Ring)	33-0094-00
4A	O-Ring, ARP 568-010	030-010-00
5	Retaining Ring, Internal	010-013-00
6	Nut, 15/32-32 x 3/32, 9/16 Hex, Chrome Plate	006-009-00
7	Knob (with Setscrew)	027-008-00
7A	Setscrew, Socket, 6-32 x 1/8, Cup Point, Black Oxide	007-016-00

SYRINGE, SOFT TOUCH BUTTON



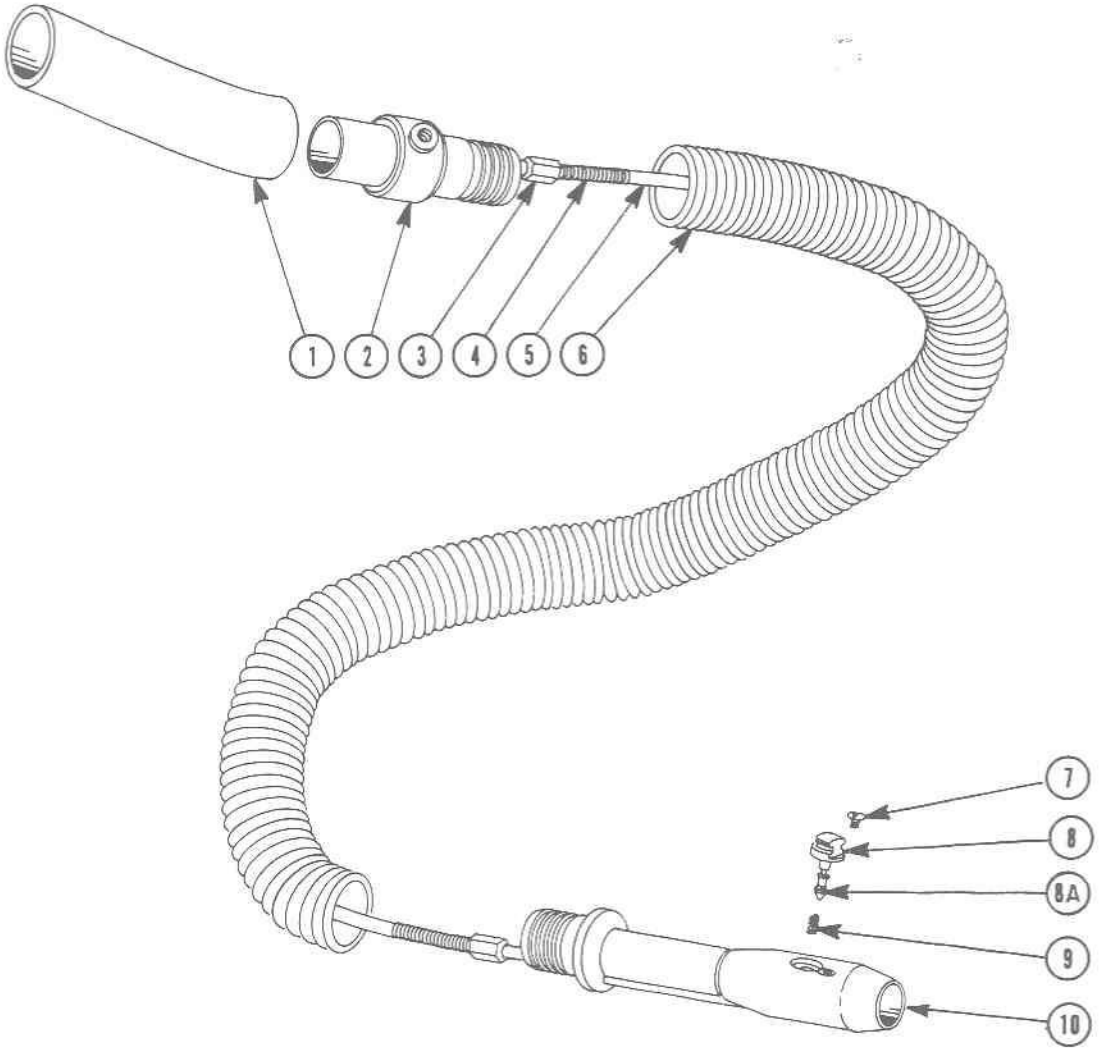
REF. NO.	DESCRIPTION	PART NO.
1	Syringe Tip, Autoclavable	23-0872-00
2	Nut, Syringe Tip	23-0875-00
3	Sleeve, Swivel *(Metal)*	23-0886-00
4	Sleeve, Non-Swivel *(Plastic)*	23-0887-00
* 5	O-Ring, Viton, ARP 568-006	033-006-00
6	Insert, Tip Adapter	23-0878-00
* 7	O-Ring, Viton, Special	035-020-00
* 8	O-Ring, Viton, ARP 568-003	033-003-00
9	Identifier, Blue	40-0691-00
10	Identifier, Yellow	40-0689-00
11	Button Assembly *(includes 11A-11F)*	23-0040-00
11A	Button Stem	23-0025-00
* 11B	O-Ring, Viton, Special	035-010-00
11C	Spool, Brass	23-0024-00
* 11D	O-Ring, Viton, Special	035-012-00
* 11E	O-Ring, Viton, ARP 568-006	033-006-00
* 11F	Retaining Ring, External	010-019-00
* 12	Spring, Conical Compression	013-038-00
13	Pin, Dowel	011-029-00
14	Syringe Body	23-0093-00
15	Connector Tube *(includes 15A)*	23-0758-00
15A	O-Ring, ARP 568-004	030-004-00
16	Terminal, Non-Circulating	23-0760-00
17	Terminal, Circulating	23-0782-00
18	Handle, Syringe	23-0757-00
19	Bushing, Syringe Handle	23-0768-00
—	Syringe Head Assembly *(includes items 1 through 14)*	23-0094-00
—	Button Service Kit *(Includes items 11B, 11D, 11E, 11F)*	90-0309-00
—	Syringe Service Kit *(Includes all items designated by an asterisk *)*	90-0317-00

AIR VACUUM SYSTEM 10-0729-00



REF. NO.	DESCRIPTION	PART NO.
1	Elbow, Saliva Ejector Drain	12-0440-00
2	Drain Tube	12-0350-00
3	Roll Rin	011-003-00
4	Baffle, Spiral	12-0380-00
—	Drain Tube Assembly (Includes Items 2-4)	12-0400-00
5	Nut, Hex, Nylon ½-20 x 7/16	12-0390-00
6	Upper Body, AVS	10-0430-00
7	Muffler Housing	10-0530-00
8	Filter, Foam	10-0540-00
9	Retaining Ring, Internal	010-001-00
—	Muffler Assembly, AVS (Includes Items 7-9)	10-0500-00
10	O-Ring, ARP 568-018	030-018-00
11	Rubber Stopper	028-002-00
12	Retaining Ring, Internal	10-0390-00
13	Screen, Perforated	10-0310-00
14	Lower Body	17-0290-00
15	Lid, AVS Waste Container	17-0320-00
16	Screw, Slotted, 10-32 x ¼	001-048-00
—	Lower Body Assembly, AVS (Includes Items 11-16)	17-0280-00
17	Waste Container, AVS	14-0010-00
—	Waste Container Assembly, AVS (Includes Items 11-17)	17-0270-00

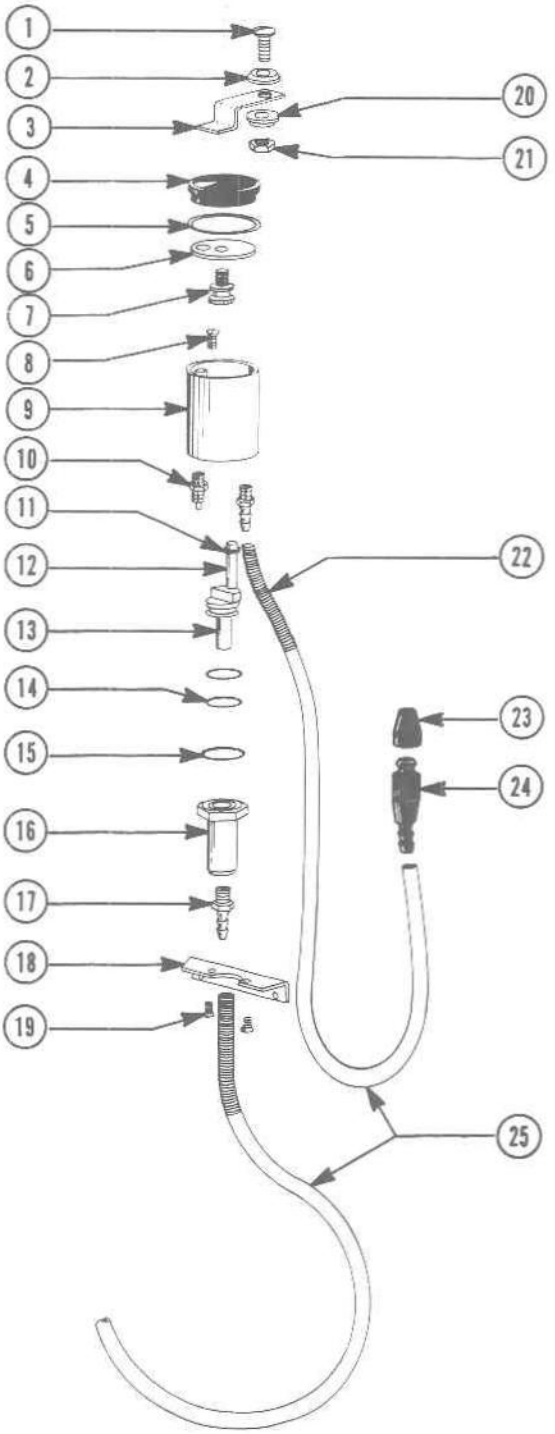
AVS HANDPIECE ASSEMBLY 10-0716-00



REF. NO.	DESCRIPTION	PART NO.
1	Tubing, Gray ¾ O.D.	024-004-00
2	Tubing Adapter Assembly	10-0170-00
3	Nut, Special	10-0120-00
4	Spring, Strain Relief	013-009-00
5	Tubing, .145 O.D.	024-003-00
6	Tubing, Convolute ⅝ I.D.	024-093-00
—	AVS Tubing Assembly (includes Items 3-6)	024-039-00

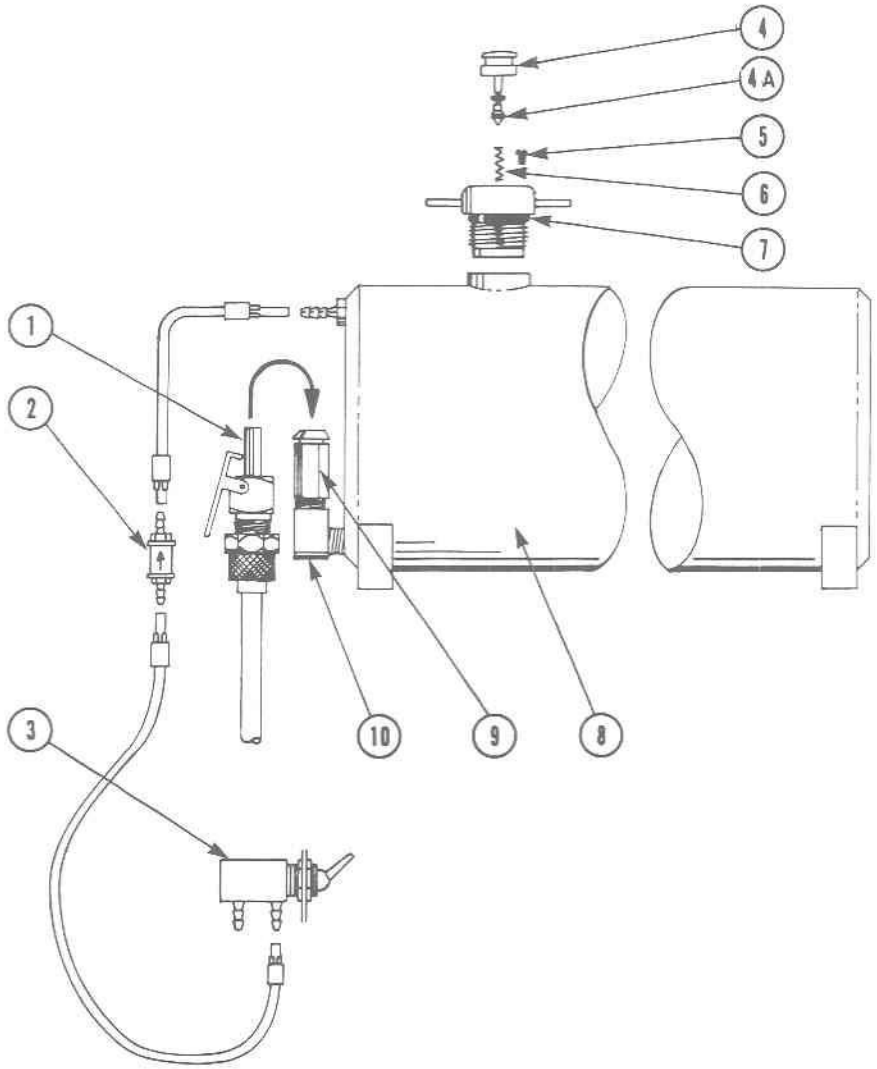
REF. NO.	DESCRIPTION	PART NO.
7	Screw, Truss Head Slotted 2-56 x 1/8	001-002-00
8*	Button, Locking (with O-Rings)	10-0110-00
8A*	O-Ring ARP 568-001	030-001-00
9*	Spring, Compression	10-0440-00
10	AVS Handpiece Body	—
—	AVS Handpiece Assembly (includes Items 7-10)	10-0700-00
—	AVS Button Kit (includes all parts designated by an asterisk*)	10-0600-00

AIR SALIVA EJECTOR 12-0070-00



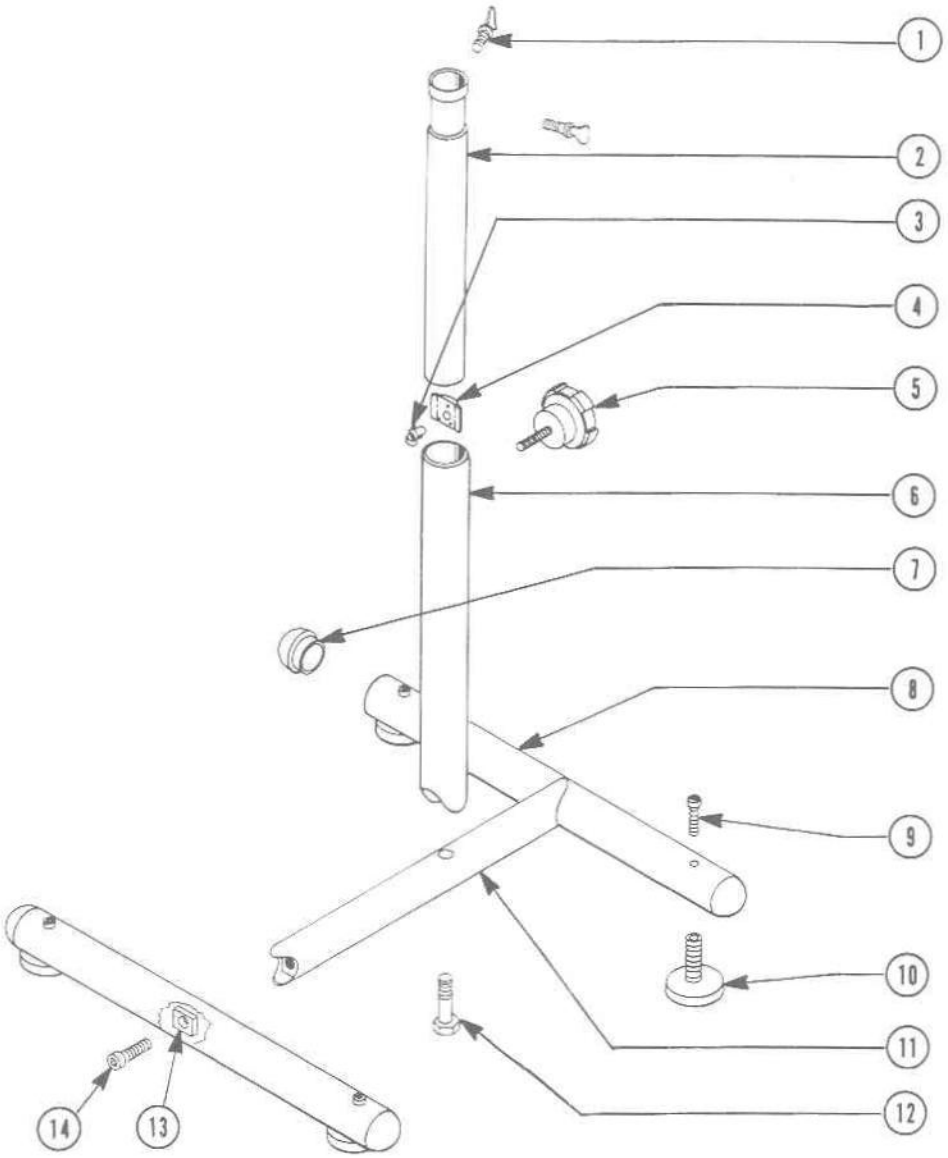
REF. NO.	DESCRIPTION	PART NO.
1	Screw, Slotted, 6-32 x 3/8	001-054-00
2	Shoulder Washer, Nylon	004-020-00
3	Bracket, ASE Cover Holder	36-0051-00
4	Cap, ASE	12-0140-00
5	O-Ring, ARP 568-031	030-031-00
6	Screen, ASE	12-0090-00
7	Screw, Knurled, 6-32 x 1/4	001-011-00
—	Cap Assembly, ASE (Includes Items 4-7)	12-0150-00
8	Screw, Slotted, 6-32 x 1/8	001-032-00
9	Body, ASE	12-0100-00
10	Adapter, 1/8 MPT x 1/4 O.D. Tubing	022-001-00
11	Retaining Ring, External	010-002-00
12	Tube, Threaded	12-0030-00
13	Venturi	12-0462-00
14	O-Ring, ARP 568-012	030-012-00
—	Jet Assembly (Includes Items 11-14)	12-0010-00
15	O-Ring, ARP 568-014	030-014-00
16	Drain Pipe, ASE	12-0160-00
17	Barb, 1/8 MPT x 1/4 (for 3/8 O.D. Tubing)	023-003-00
18	Mounting Bracket, ASE	12-0280-00
19	Screw, Slotted, 6-32 x 1/4	001-012-00
—	Air Saliva Ejector Assembly (Includes Items 4-19)	12-0070-00
20	Shoulder Washer, Nylon	004-020-00
21	Nut, 6-32 x 1/4 Hex	006-012-00
22	Spring, Strain Relief .385 I.D.	36-0082-00
23	Tip, Saliva Ejector	12-0183-00
24	Body	12-0184-00
—	Saliva Ejector Tip Assembly (Includes Items 23 & 24)	12-0200-00
25	Tubing, Gray .340 O.D.	024-008-00

WATER TANK SYSTEM



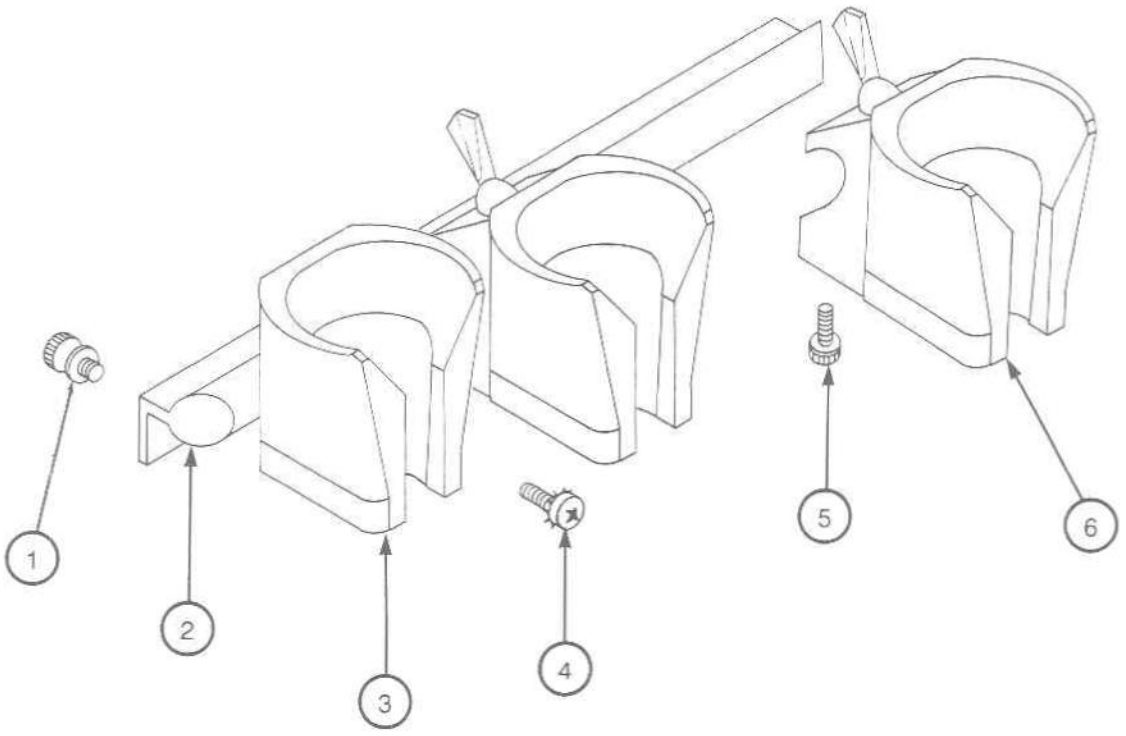
REF. NO.	DESCRIPTION	PART NO.
1	Quick Disconnect W/Valve, Male	026-003-00
2	Check Valve Assembly	026-073-00
3	Toggle Valve, 3-Way	33-0048-00
4	Button, Vent (with O-Ring)	10-0111-00
4A	O-Ring, ARP 568-001	030-001-00
5	Screw, Truss Head Slot, 2-56 x 1/8	001-002-00
6	Spring, Compression	22-0040-00
7	O-Ring, ARP 568-016	030-016-00
—	Plug Assembly, Tank (Includes Items 4-7)	36-0041-00
8	Tank	36-0039-00
9	Quick Disconnect, Female 1/4 I.D.	026-015-00
10	Street Elbow, 1/8 MPT x 1/8 FPT	021-019-00
—	Water Tank Assembly (Includes Items 4-10)	36-0023-00

PORTA-CART FRAME 36-0015-00



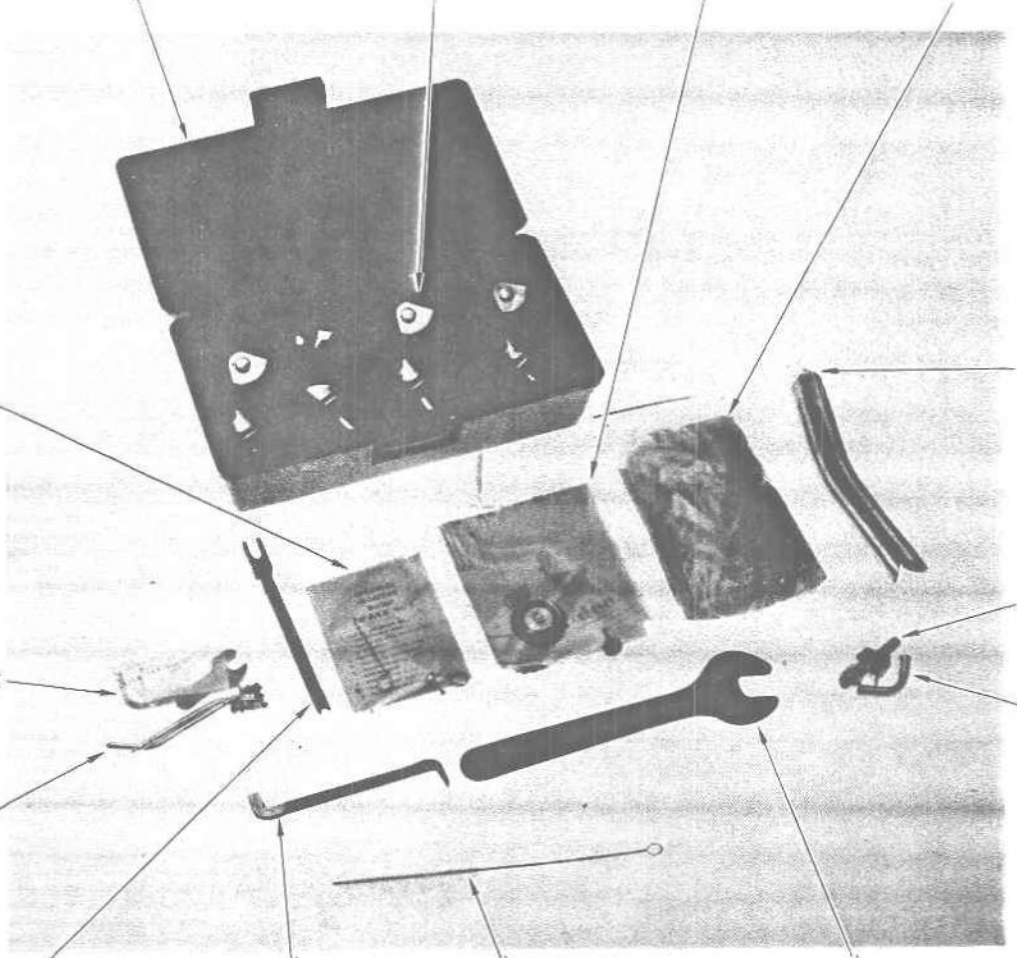
REF. NO.	DESCRIPTION	PART NO.
1	Thumbscrew, 5/16-18 x 3/4	001-099-00
2	Post, Inner	36-0013-00
3	T-Nut, 1/4-20 x 3/8	006-037-00
4	Nut Plate	36-0017-00
5	Knob	027-007-00
6	Post, Outer	36-0009-00
7	Rubber Bumper	017-002-00
8	Frame Side Member	36-0003-00
9	Capscrew, Socket Head, 10-32 x 5/8	001-088-00
10	Foot	36-0004-00
11	Frame Cross Member	36-0001-00
12	Capscrew, Hex Head 1/2-13 x 3 1/2	001-098-00
13	Clamp Bar	36-0007-00
14	Capscrew, Socket Head 1/2-13 x 2 1/2	001-090-00

HANDPIECE HANGER ASSEMBLY



REF. NO.	DESCRIPTION	PART NO.
1	Screw, Knurled	001-003-00
2	Holder Bar	99-0450-00
3	Universal Holder	99-0519-00
4	Screw, Pan Head Slotted, 6-32×1/4, Zinc Plate	001-073-00
5	Screw, Soc Hd, 6-32×9/16, Blk	005-105-00
6	Automatic Handpiece Holder	99-0537-00

PORTA CART ACCESSORY KIT 36-0089-00



MASTER PARTS LIST AND INDEX

PART NO.	QTY.	DESCRIPTION	PAGE NUMBER			
			DESCRIPTION OPERATION	MAINTENANCE	ILLUSTRATION	SERVICE PARTS BREAKDOWN
009-003-00	1	Funnel, Plastic, 3-1/4 O.D.	2	—	8	—
026-009-00	1	Gauge, Drive Air Pressure	—	—	7	—
026-065-00	1	Quick-Disconnect, Female 1/4"	7	—	7	—
026-041-00	1	Filter-Regulator, Air	18, 19	18, 19	18, 19	38
026-073-00	1	Check Valve	—	—	17, 49	—
043-003-00	1	Tray, Stainless Steel, 15-1/8×10-5/8"	2	—	1	—
10-0010-00	3	Oral Evacuator Tip, Stainless Steel, 7/16 O.D.×6"	2, 11	—	52	—
10-0716-00	1	A.V.S. Handpiece Assembly	9, 11	34, 35	9, 11, 35, 35	47
10-0729-00	1	Air Vacuum System	2, 7, 9, 11	34	9, 11	46
11-0450-00	1	Oral Cup, Dry	2	—	—	—
12-0070-00	1	Air Saliva Ejector	2, 9, 11	35	9, 11, 35	48
13-0361-00	2	Needle Valve	7	33	7, 33	44
19-0100-00	1	Mini-Filter	18	18	18	37
22-0993-00	2	Spool, Foot Control Holder	—	—	4, 5, 13	—
23-0088-00	1	Soft-Touch Button Syringe with Coiled Tubing	9, 10, 11	33	9, 33	45
24-0252-00	1	Gauge and Water Regulator Assembly Consists of:	—	—	17	—
		026-009-00 Gauge, Air or Water (2 each)	—	—	17	—
		24-0251-00 Regulator, Panel Mount	19	19	19	—
		41-0148-00 Mounting Bracket	—	—	—	—
29-0185-00	1	3-Way Micro-Valve	27	27	27, 41	41
33-0048-00	1	Toggle Valve, Three-Way	7, 32	32	7, 32	43
36-0015-00	1	Frame Assembly, Porta-Cart	2	2	2	50
36-0019-00	1	Hub, Cart-to-Frame	—	—	—	—
36-0021-00	1	Disc, Hub Attachment	—	—	—	—
36-0023-00	1	Tank Assembly, Water	8, 10, 12	—	8	49
36-0030-00	1	Housing, Porta-Cart	—	—	—	—
36-0032-00	1	Bracket, Porta-Cart Housing Center Support	—	—	—	—
36-0025-00	1	Bezel, Gauge	—	—	7	—
36-0050-00	1	Manifold, Hex Shape	—	—	17	—
36-0062-00	1	Cover, Porta-Cart	—	—	—	—
36-0070-00	1	Carrying Case, Porta-Cart	1	—	1	—
36-0072-00	1	Shock Cord, 16"	5, 12	—	4, 5, 8, 13	—
36-0080-00	2	Handle, Porta-Cart	—	—	—	—
36-0089-00	1	Accessory Kit, Porta-Cart	2	—	4, 13, 52	52
36-0103-00	1	Faceplate, Porta-Cart	—	—	7	—
38-0191-00	1	Control Assembly, Century II, 2 HP	2, 7	20, 22	17, 20, 22, 23, 24	39, 40
38-0251-00	1	Foot Control II Assembly	2, 7	26 — 31	7, 17, 28, 29, 31	42
45-0182-00	1	Tubing Assembly, Quick-Disconnect, Air Supply	6	—	1	—
85-0634-01	2	Instruction Manual	—	—	—	—
98-0448-00	2	Handpiece Tubing Assembly Consists of:	2	—	1	—
		98-0190-00 Nut, Handpiece, Midwest	—	—	—	—
		98-0450-00 Terminal, 4-Hole Midwest	—	—	—	—
		98-0822-00 Tubing, 4-Hole Coiled Black	—	—	—	—
99-0519-00	9	Handpiece Holder, Universal Black	—	—	—	51
99-0528-00	1	Handpiece Holder, Century Series Automatic	27	—	27, 41, 51	41, 51

MISCELLANEOUS HARDWARE

PART NO.	QTY.	DESCRIPTION
001-001-00	2	Screw, Round Head Slotted, 10-32 x 3-1/2
001-004-00	20	Screw, Binder Head Slotted, 10-32 x 3/8
001-009-00	4	Capscrew, Socket Head, 1/4-20 x 1
001-012-00	7	Screw, Binder Head Slotted, 6-32 x 1/4
002-041-00	6	Capscrew, Socket Head, 6-32 x 3/8
004-005-00	42	Washer, Flat Nylon, 3/16 I.D.
018-012-00	1	Hole Plug, Plastic, 1/2 Dia.
021-016-00	6	Plug, Hex Head, 10-32
023-001-00	16	Barb, 10-32 x 1/8" (for 1/4" O.D. Tubing)
023-004-00	20	Barb, 10-32 x 1/16" (for 1/8" O.D. Tubing)
023-014-00	2	Barbed Tee, 1/16" (for 1/8" O.D. Tubing)
023-022-00	1	Tee Body, 10-32
024-071-00		Tubing, Foot Control, 5-Hole * *Specify Length*
025-007-00	39	Uni-Clamp, 1/8" I.D.
025-015-00	19	Sleeve Clamp, 1/4" I.D.
025-017-00	3	Clip, Adhesive Back
036-003-00		Tubing, Regulated Air (Yellow), 1/8" O.D. * *Specify Length*
036-005-00		Tubing, Oral Cavity Water (Red), 1/8" O.D. * *Specify Length*
036-006-00		Tubing, Signal Air (Green with Black Dashes), 1/8" O.D. * *Specify Length*
036-010-00		Tubing, Drive Air (Orange with Black Dashes), 1/8" O.D. * *Specify Length*
036-051-00		Tubing, Regulated Air (Yellow), 1/4" O.D. * *Specify Length*
036-053-00		Tubing, Cold Water (Blue), 1/4" O.D. * *Specify Length*